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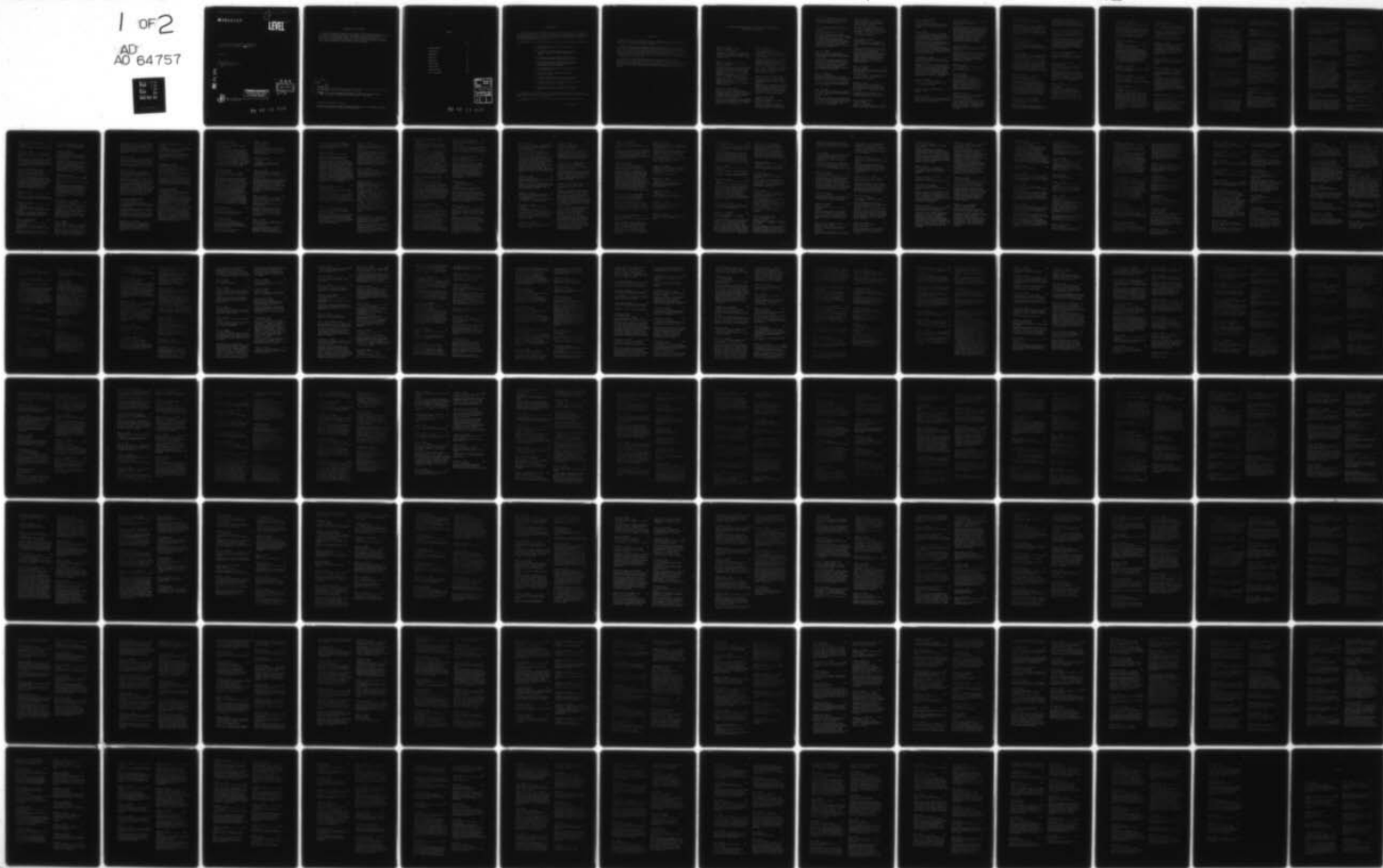
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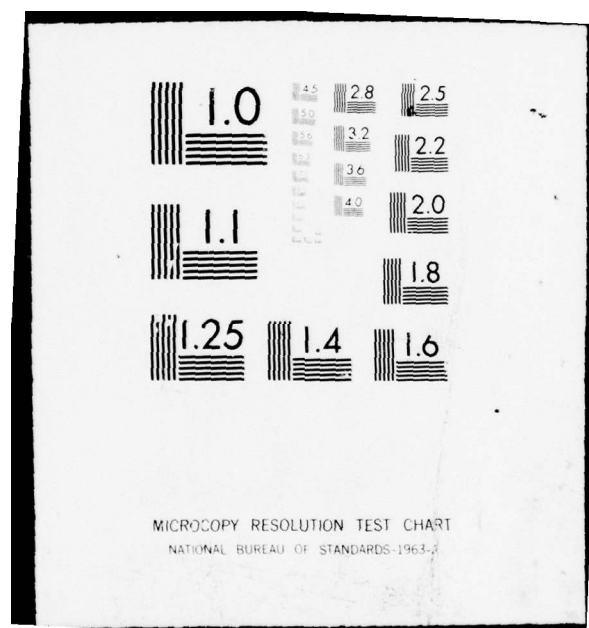
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A PARTIALLY ANNOTATED BIBLIOGRAPHY OF COMMERCIALY
EXPLOITED SCALLOPS (PECTINIDAE, ~~RAPESQUE~~ 1815)

prepared by

Edward Kopinski
Marine Resources Research Unit
Portsmouth Polytechnic
England

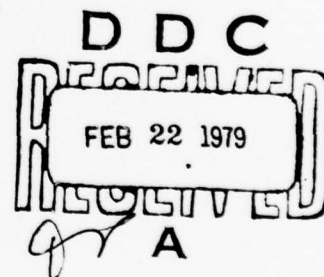
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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
ROME, December 1978

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PREPARATION OF THIS DOCUMENT

On several occasions during the last few years, FAO has received requests for bibliographic information on scallops. Unfortunately, no comprehensive work was available for reference in meeting these requests. Accordingly, when it became known that Mr. Kopinski of the Marine Resources Research Unit of Portsmouth Polytechnic (U.K.) was undertaking such a compilation, FAO agreed to publish the work in order that it could be given a wide distribution to other interested marine laboratories.

W/L7860

For bibliographic purposes this document may be cited as:

Kopinski, W., A partially annotated bibliography of commercially exploited scallops
1978. (Pectinidae, Rafinesque 1815). *FAO Fish.Circ.*, (716):158 p.

FAO Fisheries Circular (*FAO Fish.Circ.*)

A vehicle for distribution of short or ephemeral notes, lists, etc., including provisional versions of documents to be issued later in other series.

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The preparation of this bibliography has been possible only through the co-operation of many people and institutions. My initial thanks are due to the Marine Resources Research Unit for allowing me the time required for preparation of the bibliography. Particular thanks go to Mr. M.R. Dunn and Dr. C.G. Askew of the Marine Resources Research Unit for their encouragement and constructive criticism.

I would also like to thank the following for their help during my search for relevant papers:

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I also wish to thank Mrs. C. Lacey for typing what at the best of times was a very tedious script.

Edward Kopinski

INTRODUCTION

➤ The bibliography was originally compiled as a reference source for various projects involving the analysis of scallop exploitation, undertaken by members of the Marine Resources Research Unit at Portsmouth Polytechnic, England.

Most titles are listed in alphabetical order of first author's name in both the main body of the bibliography and the addenda, and in chronological order under each author. An author index is provided which allows for exceptions to this rule. The abbreviations of periodical titles are based on those used in the World List of Aquatic Sciences and Fisheries Serial Titles (FAO Fisheries Technical Paper, No. 147). Reference titles in the Roman alphabet are given in the original followed by an English translation. For non-Roman alphabets a transliterated title is given. ✕

Although it is hoped that the bibliography approaches completeness, undoubtedly references will have been inadvertently missed, and information on any omissions or corrections would be gratefully received for inclusion in a supplement. A number of references were taken from bibliographies and were not available for checking in their original form; the correctness of these citations cannot then be guaranteed. These items are marked with an asterisk.

A PARTIALLY ANNOTATED BIBLIOGRAPHY OF COMMERCIALY EXPLOITED SCALLOPS
(PECTINIDAE, RAFINESQUE 1815)

- | | | | |
|---|---|---|---|
| Abbott, R.T. (1968)
New York, Golden Press, 280 p.
Seashells of North America

Describes the morphology, size ranges and distribution of molluscs, including all the commercial scallop species, found off North American coasts. | 1 | Able, K.W. (1973)
<i>Copeia</i> , 1973(4):787-94
A new cyclopterid fish, <i>Liparis inquilinus</i> associated with the sea scallop, <i>Placopeecten magellanicus</i> , in the Western North Atlantic, with notes on the <i>Liparis liparis</i> complex

Examination of 6000 specimens collected from sea scallops with which it has commensal relationship, has shown a new species of cyclopterid fish, <i>Liparis inquilinus</i> . References to <i>L. atlanticus</i> and <i>L. liparis</i> in scallops have apparently been in error. New species found from Southern Gulf of St. Lawrence to Cape Hatteras, North Carolina. | 4 |
| Abbott, R.T. (1974)
New York, Van Nostrand, 541 p. (rev.ed.)
American seashells

Describes the morphology (for identification purposes), size ranges and distribution of molluscs found off the N. American coasts including: <i>Patinopeecten caurinus</i> (Gould), giant Pacific scallop; <i>Chlamys islandicus</i> (Muller), Iceland scallop; <i>Placopeecten magellanicus</i> (Gmelin), Atlantic deep sea scallop; <i>Aequipeecten irradians</i> (Lamarck), Atlantic Bay scallop; <i>Aequipeecten gibbus</i> (Linne), Calico scallop. <i>A. irradians</i> subspecies (<i>A. irradians</i> and <i>A. i. concentricus</i>) are also included. | 2 | Ackman, R.G. and H.J. Hingley (1968)
<i>J. Fish. Res. Board Can.</i> , 25(2):267-84
The occurrence and retention of dimethyl-B-propiothetin in some filter feeding organisms

Determinations of dimethyl-B-propiothetin (DMPT) levels are reported for 10 filter-feeding organisms, 1 browsing mollusc, 1 carnivorous mollusc, and 1 crustacean. <i>Placopeecten magellanicus</i> is the browsing mollusc used in these determinations. | 5 |
| Abe, S. and T. Kaneda (1975)
<i>Bull. Jap. Soc. Sci. Fish.</i> , 41(4):467-72
Studies on the effect of marine products on cholesterol metabolism in rats. X. Isolation of B-homobetaine from oyster and betaine contents in oyster and scallop

Describes the experimental procedure involved in the isolation and analysis of B-homobetaine from the Pacific oyster <i>Ostrea gigas</i> and the scallop <i>Patinopeecten yessoensis</i> . | 3 | Alexander, R.McN. (1966)
<i>J. Exp. Biol.</i> , 44:119-30
Rubber-like properties of the inner ligament of Pectinidae

Describes experiments carried out to determine the rubber-like properties of the inner-ligament of Pectinidae using | 6 |

Pecten maximus and *Chlamys opercularis* as examples. The results are discussed and comparisons are made with other proteins which show long-range elasticity.

Allen, D.M. and T.J. Costello (1972) 7
NOAA Tech.Rep.NMFS(Spec.Sci.Rep.-Fish.Ser.),
(656):19 p.

The calico scallop, *Argopecten gibbus*

This report summarises the available information on the biology of, and fishery for the calico scallop *Argopecten gibbus*. Reports on distribution, environmental factors influencing distribution and growth, areas of abundance, determination of maturation and spawning times, possible causes of mass mortality, and the development of the fishery and its future prospects.

Allen, E.J. (1899) 8
J.Mar.Biol.Assoc.U.K., 5(4):365-542
On the fauna and bottom-deposits near the thirty-fathom line from the Eddystone grounds to Start Point

Provides data on the distribution near 30 fathom line from Eddystone ground to Start Point of *Pecten maximus* and *P. opercularis*. Observations are made on the attachment of *P. opercularis* spat to hydroids, the associated bottom deposits and the depths at which both species were found.

Allen, J.A. (1953) 9
J.Anim.Ecol., 22:240-60
Observations on the epifauna of the deep-water muds of the Clyde Sea area, with special reference to *Chlamys septemradiata* (Muller)
C. opercularis and *P. maximus* mentioned with reference to the distribution and morphology of *C. septemradiata*.

Allen, J.A. (1962) 10
In The fauna of the Clyde Sea area, edited by H.T. Powell. Oban, Scottish Marine Biological Association, 88 p.
Mollusca

Lists locations, habitats, breeding times and brief notes on the fisheries of Mollusca found in the Firth of Clyde including: the scallop *P. maximus* (L.) and the queen *Chlamys (Aequipekten) opercularis* (L.).

Allen, J.A. (1965) 11
J.Fish.Res.Board Can., 22(4):977-97
Records of Mollusca from the Northwest Atlantic obtained by Canadian fishery research vessels, 1946-1961

Gives the N.W. Atlantic distribution of *C. islandicus* (Muller) and *Placopecten magellanicus* (Gmelin). Map shows localities from which *C. islandicus* was collected. New records extend range of living *C. islandicus* to 250 fath.

Amirthalingham, C. (1928) 12
J.Mar.Biol.Assoc.U.K., 15(2):605-41
On lunar periodicity in reproduction of *Pecten opercularis* near Plymouth in 1927-1928

Reports on the effects of the lunar phase of the moon on the reproductive cycle of *Pecten opercularis* in 1927-1928. Information on gonad changes and condition during development, hermaphroditism, the length of the breeding season, and gut content analysis during development of gonad is included. A discussion on suggested reasons for lunar periodicity is also included.

Ansell, A.D. (1974) 13
Mar.Biol., 25:85-99
Seasonal changes in biochemical composition of the bivalve, *Chlamys septemradiata*, from the Clyde Sea area

The characteristics of the seasonal cycles of *P. maximus* and *C. septemradiata* are compared in the discussion.

Anthony, R. (1906) 14
Bull.Mus.Oceanogr.Monaco, (85):1-11
Contribution à l'étude du mode de vie et de la locomotion du *Pecten* (Contribution to the study of life habits and locomotion of *Pecten*)

Investigates the living habit of the following pectinids: *Pecten varius* (L.), *P. opercularis* (L.) and *P. maximus* (L.).

Aomori-ken Suisan Zoshoku 15
Senta (1972)*
Fish Cult., (95):88-89
Etude de la coquille Saint-Jacques (A study of the scallop Saint-Jacques) (in Japanese)

- Aomori-ken Suisan Zoshoku
Senta (1972)*
Fish.Cult., (98):74 and 108
Elevage de la coquille Saint-Jacques (The rearing of the scallop Saint-Jacques) (in Japanese)
- 16
- Baird, F.T. (1954) 22
Res.Bull.Maine Dep.Sea Shore Fish., (16):3 p.
Meat yield of Maine scallops (*P. magellanicus*)
Reports dealing with conservation of scallop resources of Maine, U.S.A., with suggestions for increasing yield by modifying fishing gear. Meat yields from scallops of different ages and sizes determined so that optimal size of caught scallop can be determined. Table showing results of meat yield determinations included. Suggestions for increased scallop production, and conservation measures are provided.
- Arai, K. (1960) 17
Bull.Fac.Fish.Hokkaido Univ., (17):91-98
5. Acid soluble nucleotides in muscle of marine invertebrates. Degradation of adenylic acid in the muscles of scallop and abalone (in Japanese with English abstract)
Describes the rates of degradation of AMP, IMP, AdR and HxR added in crude enzyme of the muscle extract of the scallop *Pecten yessoensis* and the abalone *Haliotis discus hannai* studied by ion-exchange chromatographic analysis. The paper also considers the pathway of degradation of ATP in the muscle of the scallop and the abalone.
- Aravindakshan, I. (1955) 18
Ph.D. Thesis, Liverpool University, 79 p.
Studies on the biology of the queen scallop *Chlamys opercularis*
Describes investigations carried out on the breeding of *C. opercularis* with particular reference to the development of the gonad and the seasonal histological changes in the gonad. The rate of growth and the possible factors affecting the formation of annual rings are also investigated. Regional growth comparisons of *C. opercularis* are made.
- Audouin, J. (1951)* 19
Nantes, I.S.T.P.M. Serie B, No. 47
Chlamys varia, biologie et pêche (*Chlamys varia*, biology and fishery)
- Audouin, J. and R. Letaconnoux (1953) 20
Ann.Biol., 8:180
Scallop
- Baird, F.T. (1953) 21
Res.Bull.Maine Dep.Sea Shore Fish., (14):8-17
Observations on the early life history of the giant scallop (*P. magellanicus*)
- Baird, F.T. (1954a) 23
Fish.Circ.Maine Dep.Sea Shore Fish., (14):8 p.
Migration of the deep sea scallop (*Pecten magellanicus*)
Describes a study carried out to determine the possible movement and migratory activity of the scallop *P. magellanicus* (*Placopecten magellanicus* (Gmelin)) using tagging techniques. The results of the tagging operations are discussed.
- Baird, F.T. (1956) 24
Bull.Fish.Maine Dep.Sea Shore Fish.(Educ. Ser.), Unit 2:5 p.
The sea scallop (*Placopecten magellanicus*)
- Baird, R.H. (1952) 25
Fish.News, (2064):9
The English Channel escallop beds
Survey undertaken to determine, so far as possible, the limits and densities of escallop (*Pecten maximus*) beds off the French and English coasts as a first step towards a revival of the industry in England. Comparisons made with the commercial bed off the coast of Devon.
- Baird, R.H. (1955) 26
J.Cons.Perm.Int.Explor.Mer, 20(3):290-4
A preliminary report on a new type of commercial escallop dredge
The article describes a new type of scallop dredge showing an efficiency of the order of three times that of a standard scallop dredge. The results of trials carried out and other advantages of the dredge are discussed.

- Baird, R.H. (1958) 27
Proc. Malacol. Soc. Lond., 33(2):67-71
 On the swimming behaviour of escallops (*Pecten maximus* L.)
 The behaviour of *Pecten maximus*, under natural conditions, to the approach of, and collection by, a diver is described. The results of experiments, with scallops in aquaria, to determine the swimming movement and recessing ability of scallops are also included.
- Baird, R.H. (1960) 28
Rep. Challenger Soc., 3(12):25
 Escallops and starfish
 Describes the reactions of scallops (*Pecten maximus*) to mussel and starfish extract in both simulated natural conditions and natural conditions.
- Baird, R.H. (1959) 29
In Modern fishing gear of the world, edited by H. Kristjansson. London, Fishing News (Books), pp. 222-4
 Factors affecting the efficiency of dredges
 The various factors affecting the efficiency of dredges, i.e. diving plates, warp depth ratios, towing speed, type of ground being dredged, are discussed. Results of a preliminary attempt to measure the efficiency of a traditional scallop dredge are included.
- Baird, R.H. (1966) 30
J. Mar. Biol. Assoc. U.K., 46(1):33-47
 Notes on a scallop (*Pecten maximus*) population in Holyhead harbour
 Reports on the results of sampling of a discrete unfished population of scallops (*Pecten maximus*) at Holyhead, by diving, to indicate whether an influx into the area of scallops at any age or size other than by spat settlement had occurred. Discusses the selectivity of sampling dredges, growth rates in Holyhead harbour, and the length frequency distribution of the age groups.
- Baird, R.H. and F.A. Gibson (1956) 31
J. Mar. Biol. Assoc. U.K., 35(3):555-62
 Underwater observations on scallop *Pecten maximus* (L.) beds
 Samples of scallops at Port Erin were collected by diving and dredging to determine the length-frequency and age-frequency distribution of the population. The advantages and disadvantages of the two sampling methods and the results of each are discussed. Movement, distribution and spawning periods are also investigated.
- Barber, V.C. and P.N. Dilly (1969) 32
Z. Zellforsch. Mikrosk. Anat., 94:462-78
 Some aspects of the fine structure of the statocysts of the molluscs *Pecten* and *Pterotrachea*
 Describes morphology of statocysts of the molluscs *Pecten* and *Pterotrachea* with the aid of diagrams and electron micrographs. Two different ciliary arrangements are described and the possible importance of cilia and microvilli in the transduction process is discussed.
- Barber, V.C. and M. Land (1966) 33
J. Physiol., Lond., 185:1-2
 The physical properties of a biological reflector: the argentea of the eye of *Pecten*
- Barber, V.C., E.M. Evans and M.F. Land (1967) 34
Z. Zellforsch. Mikrosk. Anat., 76:295-312
 The fine structure of the eye of the mollusc *Pecten maximus*
 Describes the fine structure of the two light sensitive layers forming the distal and proximal retinæ in *P. maximus*. The functions of the argentea (the reflecting layer below the proximal retina) and the pigment cell layer are explained.
- Bauer, V. (1913) 35
Zool. Jahrb. (Allg. Zool. Physiol. Tiere), 133:127-49
 Zur Kenntnis der Lebensweise von *Pecten jacobaeus* L.: im besonderen über die Funktion der Augen (On the knowledge of the habits of *Pecten jacobaeus* L.: in particular on the function of the eye)
 Provides a physiological analysis of the function of the eye in *Pecten jacobaeus* L.

- Bayliss, L.E., E. Boyland and A.D. Ritchie (1930) 36
Proc.R.Soc.Lond.(B Biol.Sci.), 106:363-76
 The adductor mechanism of *Pecten*
 Provides the results of experiments carried out to determine the reasons for contracture in isolated slow and fast muscle in *Pecten* (*Pecten magellanicus*, *P. maximus* and *P. opercularis*) and the way in which this can be affected by faradic stimulation.
- Bazikalova, A.Y. (1934) 37
Izv.AN S.S.S.R.(Otd.Mat.Est.Nauk), (2/3): 289-394
 Age and growth rate in *Pecten yessoensis* Jay (in Russian, English summary)
 Describes a new method, using distinct annual growth patterns on the triangular ligament, for the determination of age and rate of growth of bivalve molluscs using *Pecten yessoensis* as an example. The effect of the spawning season on the growth rate is determined and the growth rates of *P. yessoensis* in differing environments are compared and discussed.
- Bazikalova, A.Y. (1930)* 38
Rybn.Khoz., 9/11:63-7
 Some data on biology and fishery for scallop (*Pecten yessoensis* Jay)
- Bazikalova, A.Y. (1950) 39
Izv.Tikhookean.Nauchno-Issled.Inst.Rybn.Khoz.Okeanogr./Trans.Fac.Res.Inst.Fish.Oceanogr., 32:161-3
 Some data on scallop reproduction (in Russian)
- Beatty, S.A. (1935) 40
Prog.Rep.Biol.Board Can.Atl.Coast Stn., (14):14-6
 The handling of shucked scallops
 This paper discusses the effect of faulty handling of scallops on the returns from the Canadian Atlantic coast fishery. The characteristics of scallops, i.e., survival time of shucked meats, with reference to processing are discussed. The following processing methods are described: (a) effects of washing meats in freshwater; (b) testing for determination of freshwater soaking of meats; (c) correct storage and storage temperatures.
- Beaumont, A.R. and L.D. Gruffydd (1974) 41
J.Mar.Biol.Assoc.U.K., 54(3):713-9
 Studies on the chromosomes of the scallop *Pecten maximus* (L.) and related species
 Provides the results of studies carried out into the chromosome pairs of *Pecten maximus* and other related species, including *Chlamys islandicus*, *C. opercularis*, *C. varia*, *Placopecton magellanicus* during cell division.
- Belding, D.L. (1910) 42
 Massachusetts Commission of Fisheries and Game, special report, 150 p.
 A report upon the scallop fishery of Massachusetts, including the habits, life history of *Pecten irradians*, its rate of growth and other factors of economic value
- Belloc, G. (1934)* 43
 Nantes, I.S.T.P.M., 1934, pp. 168-70
 La pêche des petoncles (The fishery for queens)
- Bernard, F.R. (1972) 44
Can.J.Zool., 50:53-7. Issued also as *Stud.Fish.Res.Board Can.*, (1618)
 Occurrence and function of lip hypertrophy in the Anisomyaria (Mollusca, Bivalvia)
 The labial structures of 36 species (including *Pecten caurinus* and *P. maximus*) in 24 genera in the Anisomyaria were examined to demonstrate that true hypertrophy occurs only in Pectinidae, Spondylidae and Linunidae. The removal of Propeamussidae from the Pectinidae is suggested. The function of enlarged lips is discussed.
- Bhatnagar, K.M. (1972) 45
Fish.Leafl.Dep.Agric.Fish.(Eire), (32): 4 p.
 East coast queen fishery 1970
 Reports on the results of a queen survey undertaken on the east coast of Ireland during November 1970. An analysis of samples taken from fishing boats, subsequently involved in the fishery, during the 1970 fishing season is also provided.

Bigelow, H.B. and W.W. Welsh (1914) 46
Econ. Circ. U.S. Bur. Fish., (7)
 Opportunity for the new sea scallop fishery
 off the middle Atlantic coast

Biraud, M. and A. Biraud (1958) 47
Penn. ar. Bed (Nouv. Ser.), 13(3):24-32
 Les coquilles Saint-Jacques de la rade de
 Brest (Scallops off the coast of Brest)

Provides information on the morphology,
 habitat, locomotion, reproduction, growth
 and enemies of *Pecten maximus*. Reports on
 the state of the fishery for *P. maximus* off
 Brest describing the type of boats and
 equipment used, fishing methods employed
 and the salaries of the fishermen. Details
 of the landings of scallops from 1949-1956
 are provided with the values from 1952-56.
 Accounts of the wholesale and retail trade,
 primary processing and secondary utilization
 of scallops are also reported.

Bizio (1866)* 48
C.R. Hebd. Séances Acad. Sci., Paris, 62:675-8
 Sur l'existence du glycogène dans les
 animaux invertébrés (On the existence of
 glycogen in invertebrate animals)

The first record of the presence of glycogen
 in lamellibranchs (*Pecten jacobaeus*).

Blamberg, D.L. and D.C. O'Meara (1973) 49
Poultry Sci., 12(3):1203-5
 Dehydrated scallop viscera, a potential
 component of poultry rations

Presents an account of analyses performed to
 determine the proximate composition and amino
 acid composition of scallop viscera (60%
 of non-shell protein). The potential value
 of dehydrated scallop viscera as an
 ingredient in poultry ration feeds is
 discussed.

Blaney, D. (1873) 50
Proc. Boston Soc. Nat. Hist., 32:23-42
 List of shell-bearing Mollusca of Frenchman's
 Bay, Maine

Lists 127 species and 5 varieties of shell-
 bearing Mollusca collected during the summer
 seasons between 1901 and 1904 by dredging,
 shore collection, and stomach examination of
 haddock caught in Frenchman's Bay. *Pecten*
 (*Placopecten*) *magellanicus* (Gmelin) and *P.*
 (*Chlamys*) *islandicus* (Muller) are included.
 The distribution of adult and young specimens

and their sizes is included for
P. (Placopecten) magellanicus while the
 distribution of empty valves is provided
 for *P. (Chlamys) islandicus*.

Borden, M.A. (1928) 51
Manuscr. Rep. Ser. Fish. Res. Board Can.,
 (350):35 p.

A contribution to the study of the giant
 scallop, *Placopecten grandis* (S.)

Boss, K.J. and A.S. Merrill (1965) 52
Proc. Malacol. Soc. Lond., 36:349-55
 Degree of host specificity in two species
 of *Odostomia* (Pyramidellidae: Gastropoda)

Provides the results of experiments carried
 out to determine the degree of host
 specificity in two species of *Odostomia*
 using original and selected hosts
 (including *Placopecten magellanicus*
 (original) and *Aequipecten irradians*
 (selected)). Relationships between the
 ectoparasites and the original and
 selected hosts are reported.

Bourne, N. (1965) 53
J. Fish. Res. Board Can., 22(2):313-33
 A comparison of catches by 3 and 4 inch
 rings on offshore scallop drags

Provides comparisons of the catches of two
 offshore scallop drags, with 4" (102 mm)
 and 3" (76 mm) inside diameter rings used
 over Georges Bank in 1959 and 1961. It is
 determined whether delaying the capture of
 5 yr. old scallops for a year would
 increase the annual yield of meats. The
 effect of increased linkage on catches was
 also measured.

Bourne, N. (1960) 54
Circ. Fish. Res. Board Can. (Gen. Ser.),
 (33):2 p.

Outlook for the Georges Bank scallop
 fishery

Provides a history of the Georges Bank
 scallop fishery since the early 1930's up
 to 1960. Looks at the present day fishery
 and the effects of fluctuations in
 abundance on the fishery and possible
 reasons for the fluctuations. Landing
 predictions and a note on future research
 plans are also included.

Bourne, N. (1965) 55
J. Fish. Res. Board Can., 22(5):1137-49
 Paralytic shellfish poison in sea scallops
 (*Placopecten magellanicus* Gmelin)

This paper provides results of bioassays, for paralytic shellfish poisoning, carried out in sea scallops (*Placopecten magellanicus*) from Georges Bank, southern Gulf of St. Lawrence and Bay of Fundy.

Bourne, N. (1966) 56
Res. Bull. ICNAF, (3):15-25. Issued also as
Stud. Fish. Res. Board Can., (1176):10 p.
 Relative fishing efficiency and selection of three types of scallop drags

Fishing efficiency and selection and five sets of scallop drags (offshore); 3 ft (0.81 m) tumbler; 4 ft (1.22 m) tumbler, 4 inch (102 mm) mesh-trawl net, and 5 inch (127 mm) mesh trawl net, were compared in the Gulf of St. Lawrence (4T) and on Georges Bank (5Z).

Bourne, N. (1969) 57
Tech. Rep. Fish. Res. Board Can., (104):60 p.
 Scallop resources of British Columbia

A detailed account of the life history of *Pecten (Patinopecten) caurinus* Gould considered to be the only potentially commercial scallop species in British Columbia is presented. The results of surveys carried out in 1934, 1960, 1961, 1966, and 1967 to determine the availability of commercial quantities of the scallop are presented and compared with U.S. surveys undertaken outside British Columbia waters. The types of dredges used in the surveys are described and their efficiencies compared. The survey results and the possibility of a Canadian scallop fishery in the Gulf of Alaska are discussed and a general assessment made.

Bourne, N. (1964) 58
Bull. Fish. Res. Board Can., (145):60 p.
 Scallops and the offshore fishery of the Maritimes

A general account of the biology of the sea scallop (*Placopecten magellanicus*) and the Iceland scallop (*Chlamys islandicus*) is provided and the development of the offshore fishery for both is described. The types of boats and gear used and their operation within the fishery is also reported. The

nature of some of the problems encountered in the fishery, and the necessity for further research are discussed.

Bourne, N. and E.G. Bligh (1965) 59
J. Fish. Res. Board Can., 22(3):861-4
 Orange-red meats in sea scallops

Provides the results of a study carried out to assess the intensity of pigmentation, the distribution and abundance of the colour, and the compounds causing the colouration in orange-red scallop meats from grounds in the N.W. Atlantic. The relationships between sex and colour, size and colour and the effect of the areas where found are also reported. Analyses of the meats were carried out to determine whether water, fat, protein content or taste differed from that of white meats.

Bourne, N., E.I. Lord and A.R. McIver (1965) 60
Manuscr. Rep. Ser. (Biol.) Fish. Res. Board Can., (807):52 p.
 Gulf of St. Lawrence scallop survey - 1961
 Detailed report of Gulf of St. Lawrence scallop survey, 1961.

Bourne, N. and A. McIver (1962) 61
Circ. Fish. Res. Board Can. (Gen. Ser.), (35):4 p.
 Gulf of St. Lawrence scallop exploration - 1961

Provides results of a survey of 40 areas carried out to search for commercial stocks of sea scallops (*Placopecten magellanicus*) in the southern Gulf of St. Lawrence in July and August 1961. Survey methods, dragging procedure and areas having commercial beds are described. An assessment of the present and future potential of the fishery is also presented.

Bourne, N. and T. Rowell (1966) 62
Manuscr. Rep. Ser. (Biol.) Fish. Res. Board Can., (888):14 p.
 A comparison of two types of odometers

Bourne, N. and T.W. Rowell (1965) 63
Manuscr. Rep. Ser. (Biol.) Fish. Res. Board Can., (808):9 p.
 Gulf of St. Lawrence scallop survey - 1963

- Bourne, N. and T.W. Rowell (1965) 64
Manuscr. Rep. Ser. (Biol.) Fish. Res. Board Can.,
 (809):20 p.
 Gulf of St. Lawrence scallop survey - 1964
- Bowers, A.B. (1967) 65
Annu. Rep. Proc. Challenger Soc., 3(19):48
 A sample fleet analysis of the Manx scallop fishery
 From the detailed records of three commercial vessels engaged in the Manx scallop *Pecten maximus* fishery catch per unit effort data is presented for the years 1958, 1961 and 1966. An analysis of the figures follows.
- Brand, A.R. and D. Roberts (1973) 66
J. Exp. Mar. Biol. Ecol., 13(1):29-43
 The cardiac responses of the scallop *Pecten maximus* (L.) to respiratory stress
 Reports on the heart activity of *Pecten maximus* (L.) recorded during various forms of experimentally induced respiratory stress. The results are compared with previous work on other bivalve species from different geographical areas and habitats, and the mechanisms controlling cardiac and respiratory regulations are discussed.
- Brannen, R.E. (1940) 67
Manuscr. Rep. Ser. (Biol.) Fish. Res. Board Can.,
 (374)
 The growth rate and age group distribution of the giant scallop in the Bay of Fundy, 1940
- Brannen, R.E. (1952) 68
Manuscr. Rep. Ser. (Biol.) Fish. Res. Board Can.,
 (473A and B)
 A. Preliminary report of the scallop investigation at Digby, Nova Scotia, summer of 1939
 B. Report of the scallop investigation conducted by the Fisheries Research Board of Canada during the summer of 1939
- Bree, S., D.B. Johnson and 69
 H.P. Coughlan (1974)
Comp. Biochem. Physiol., (B Comp. Biochem.),
 49(4):547-60
 Characterisation of arribonuclease from the hepatopancreas of the queen scallop, *Chlamys opercularis*
 Describes the procedures involved in the isolation and purification of a ribonuclease from the hepatopancreas of *Chlamys opercularis*. The properties of the enzyme are analysed and discussed.
- Brienne, H. (1954) 70
Sci. Pêche, 1(15):9-11
 Le vanneau (*Chlamys opercularis* L.) en Manche orientale (The queen scallop, *Chlamys opercularis* L., in the eastern English Channel)
 Describes the morphology, the means of locomotion, the reproduction process, and reports on commercial yields of *C. opercularis* obtained from the eastern English Channel. A map showing the distribution of *C. opercularis* in the eastern English Channel is also included.
- Brockerhoff, H. (1966) 71
Comp. Biochem. Physiol., 19:1-12. Issued also as *Stud. Fish. Res. Board Can.*, (1080): 12 p.
 Fatty acid distribution patterns of animal depot fats
 Triglyceride analyses are presented in diagrams showing the distribution of fatty acids between the different positions of the tryglyceride. Fats of terrestrial and marine mammals, birds, fish and invertebrates including the sea scallop (*Placopecten magellanicus* Gmelin) are investigated.
- Brockerhoff, H. et al. (1968) 72
Lipids, 3:24-9. Issued also as *Stud. Fish. Res. Board Can.*, (1226):5 p.
 Positional distribution of fatty acids in depot triglycerides of aquatic animals
 Stereospecific triglyceride analyses performed on fats of aquatic invertebrates (one being *Placopecten magellanicus* Gmelin), freshwater fish, marine fish, marine birds, Amphibia, seals, a whale and a marine turtle.
- Brun, E. (1968) 73
Astarte, (32):1-3
 Extreme population density of the starfish *Asterias rubens* L. on a bed of Iceland scallop, *Chlamys islandica* (O.F. Muller)
 Short note based on observations made and material collected from four dives made in June-September 1967 in Balsfjord, Nr. Tromso, N. Norway where an extremely

dense belt of *Asterias rubens* was found. Size and densities, in various parts of the belt, are given. Gonad condition of the starfish are described. The effect of the starfish on the scallop (*Chlamys islandicus*) bed, over which they were travelling, is reported.

Bryan, G.W. (1971) 74
Proc.R.Soc.Lond., (B Biol.Sci.), 177:389-410
 The effects of heavy metals (other than mercury) on marine and estuarine organisms

Refers to the accumulation of heavy metals in the renal organs of *Chlamys opercularis*.

Bryan, G.W. (1973) 75
J.Mar.Biol.Assoc.U.K., 53(1):145-66
 The occurrence and seasonal variation of trace metals in the scallops *Pecten maximus* (L.) and *Chlamys opercularis* (L.)

Compares the concentration of eleven trace metals in the tissues of *P. maximus* (L.) and *C. opercularis* (L.) collected from the same area of the English Channel. Observations were made as to the seasonal changes in concentration of the individual metals in the scallops, the causes of these changes (their implications being discussed). The results obtained for the two pectinids are compared with those in the literature for other species from the family Pectinidae.

Bucquoy, E., P. Dautzenberg and 76
 G. Dollfus (1889)
Bull.Hydrogr.ICES, (189):61-112
 Les mollusques marins du Roussillon II (3);
 Pelecypodes (Marine molluscs of Roussillon II, (3). Pelecypods)

Provides a historical account of pelecypode nomenclature and includes *Pecten jacobaeus* (*P. maximus*), *P. opercularis* and *P. varius*. Morphological descriptions of each species, their habitat and distribution are included. The origin of the species is discussed.

Buddenbrock, W. von (1911) 77
Sitzungsber.Heidelb.Akad.Wiss., 28:1-24
 Untersuchungen über die Schwimmbewegungen und die Statocysten der Gattung *Pecten*
 (Investigations concerning the ciliary movement and the statocysts of the genus *Pecten*)

Buddenbrock, W. von (1915) 78
Zool.Jahrb.(Aug.Zool.Physiol.Tiere), 35:301-56

Die Statocysten von *Pecten*, ihre Histologie und Physiologie (The statocysts of *Pecten*, their histology and physiology)

Describes the anatomy and histology, and provides physiological analysis of the statocyst of *Pecten*, including *Pecten maximus*, *P. opercularis*, *P. varius*, *P. jacobaeus*.

Buddenbrock, W. von and 79
 I. Moller-Racke (1953)
Pubbl.Stn.Zool.Napoli, (24):217-45
 Über den Lichtsinn von *Pecten* (Concerning the light perceptiveness of *Pecten*)

Physiological investigation carried out on the eyes of four spp. of *Pecten*, *Pecten jacobaeus*, *P. opercularis*, *P. varius*, *P. flexuosus*. Describes the aperture and arrangement of eyes, the effects of new environment and differing light intensities by observation of orientation reactions, and reaction to different types of movement.

Buestel, D., J.C. Dao and 80
 A. Muller-Fuega (1974)
 In Colloque sur l'acuaculture, Brest, 22-24 October 1973. Paris, CNEXO, Actes de Colloques, (1):47-60

Resultats preliminaires de l'experience de collecte de naissain de coquille St. Jacques en rade de Brest et Baie de Saint-Brieuc (Preliminary results of the experiments on spat collection of *Pecten maximus* in the Brest Bay and in the Saint-Brieuc Bay)

Provides results of preliminary experiments on the spat collection of *P. maximus* at different water depths, using various types of spat collectors (based on a Japanese model for *P. yessoensis* spat collection). Comparisons are made between Brest harbour and the bay of Saint-Brieuc (France) with reference to the numbers of spat collected at different depths and different locations within the experimental area.

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| <p>Bullis, H.R., Jr. and
R. Cummins, Jr. (1961)
<i>Commer. Fish. Rev.</i>, 23(10):1-8
An interim report of the Cape Canaveral calico scallop bed</p> <p>Interim report on the commercial potential of the Cape Canaveral calico scallop (<i>Argopecten gibbus</i>) bed. Fishing gear and sampling methods are described. Depths of commercial concentration of scallops, catch rates during simulated commercial production trials, size distribution meat yields and fluctuations, and the commercial significance of the bed were investigated. A map showing the extent for possible future commercial development of the bed is discussed.</p> | <p>81</p> | <p>Burgess, J. (1973)
<i>Fish. News</i>, (3113):9
Gear for queens</p> <p>Provides information on the location of commercial quantities of queen scallops (<i>Chlamys opercularis</i>) in U.K. waters, the boats employed in the fishery and the types of gear used.</p> | <p>85</p> |
| <p>Bullis, H.R., Jr. and
R.M. Ingle (1959)
<i>Proc. Gulf Caribb. Fish. Inst.</i>, 11:75-8
A new fishery for scallops in Western Florida</p> <p>Paper provides a history of cruise reports from the Gulf of Mexico in the 1950's which led up to the discovery of extensive gulf scallop (<i>Pecten (Aequipecten) gibbus</i>) grounds. Early commercial exploitation is described with reference to type of boats and gear used, the hours worked by the fisherman and the catch rates recorded. Meat yields and meat size variations, spawning seasons and condition of scallops at different times of year with its consequent effect on the fishing seasons are discussed. Shell size frequency and year class data are reported and discussed, as are questions concerning the taxonomy of <i>P. gibbus</i>. An assessment of the future prospects of the fishery is also included.</p> | <p>82</p> | <p>Butcher, E.O. (1930)
<i>Biol. Bull. Mar. Biol. Lab., Woods Hole</i>, 59:154-64
The formation, regeneration and transplantation of eyes of <i>Pecten (Gibbus borealis)</i></p> | <p>86</p> |
| <p>Bullis, H.R., Jr. and
T.D. Love (1961)
<i>Commer. Fish. Rev.</i>, 23(5):1-4
Application of steaming and vacuum to shucking and cleaning scallops</p> | <p>83</p> | <p>Caddy, J.F. (1968)
<i>J. Fish. Res. Board Can.</i>, 25(10):2123-41
Underwater observations on scallop (<i>Placopecten magellanicus</i>) behaviour and drag efficiency</p> <p>Estimates the efficiency of an 8 ft scallop drag from population density measurements and direct observation by scuba divers. The response of scallops to movement, and their swimming action when disturbed, and the effect of size on mobility are described. The effects of the drag on the bottom over which it passes are also described.</p> | <p>87</p> |
| <p>Bullis, H.R., Jr. and
J.R. Thompson (1965)
<i>Spec. Sci. Rep. USFWS</i>, (510):130 p.
Collections by the exploratory fishing vessels OREGON, SILVER BAY, COMBAT and PELICAN made during 1956-1960 in the south-western North Atlantic</p> <p>Table giving location and depths of Pectinidae species included.</p> | <p>84</p> | <p>Caddy, J.F. (1969)
<i>In</i> Observations made by St. Andrews staff during submersible operations 1968, edited by A.V. Tyler. <i>Tech. Rep. Fish. Res. Board Can.</i>, (102):4-5
Submarine operations over scallop beds near Richibucto</p> <p>Describes the working of a system developed for the continuous recording of density changes across a scallop (<i>Placopecten magellanicus</i>) population and reports on early trials carried out in the field.</p> | <p>88</p> |
| <p>Bullis, H.R., Jr. and
J.R. Thompson (1965)
<i>Spec. Sci. Rep. USFWS</i>, (510):130 p.
Collections by the exploratory fishing vessels OREGON, SILVER BAY, COMBAT and PELICAN made during 1956-1960 in the south-western North Atlantic</p> <p>Table giving location and depths of Pectinidae species included.</p> | <p>84</p> | <p>Caddy, J.F. (1970)
<i>J. Fish. Res. Board Can.</i>, 27(3):535-49
A method of surveying scallop populations from a submersible</p> <p>A system is described for continuously recording density changes across a population of benthic organisms from a submersible tested in the Northumberland</p> | <p>89</p> |

Strait over a population of scallops (*Placopecten magellanicus*). Information on the distribution of scallops in the area is also provided

Caddy, J.F. (1970) 90
Tech. Rep. Fish. Res. Board Can., (225):
 11 p.

Records of associated fauna in scallop dredge hauls from the Bay of Fundy

This report provides a description and preliminary analysis of data obtained during surveys of scallop grounds in Bay of Fundy 1966-67 (*Tech. Rep. Fish. Res. Board Can.*, (168) already described) and the distribution, abundance, and age composition of *Placopecten magellanicus*. This report summarises data on the associated fauna and scallop epifauna captured in hauls. Description of methods used, notes on distribution of benthic fauna are given. A summary and conclusions section gives advantages and disadvantages of methods used and ways of interpreting the results obtained by this form of sampling.

Caddy, J.F. (1971) 91
ICES Shellfish Benthos Comm. Pap.
 CM 1971/K25:8 p.

Efficiency and selectivity of the Canadian offshore scallop dredge

Using a dredge, modified for use as a camera platform, observations were carried out to determine the efficiency and selectivity of the Canadian offshore scallop dredge over two different types of bottom on Georges Bank and in the Gulf of St. Lawrence.

Caddy, J.F. (1971) 92
Redbook ICNAF, 1970(3):147-55
 Recent scallop recruitment and apparent reduction in cull size by the Canadian fleet on Georges Bank

With the aid of experimental fishing, bottom photography and meat size analyses a report is presented on the status of the Georges Bank scallop *Placopecten magellanicus* fishery. Recent recruitment to the fishery is also determined and discussed.

Caddy, J.F. (1972) 93
J. Exp. Biol. Ecol., 19:179-90
 Progressive loss of byssus attachment with size in the sea scallop *Placopecten magellanicus*

Reports on investigations carried out into the relationship between age and byssal attachment in *Placopecten magellanicus*, and the percentage of a particular population attached by byssal threads. The process of byssal attachment, the effect of temperature on the rate of byssal formation, and the effect of attachment on swimming responses is also described.

Caddy, J.F. (1972a) 94
Redbook ICNAF, 1971(3):79-85
 Size selectivity of the Georges Banks offshore dredge and mortality estimate for scallops from the northern edge of Georges in the period June 1970 to 1971

Caddy, J.F. (1973) 95
J. Fish. Res. Board Can., 30(2):173-80
 Underwater observations on tracks of dredges and trawls and some effects of dredging on a scallop ground

The tracks of three types of fishing gear in bottom sediments were observed from a submersible in the Gulf of St. Lawrence in order to: a) determine whether inshore and offshore scallop dredge and trawl tracks could be distinguished from each other; b) observe the effects of dredging on the bottom and remaining scallops. Percentage mortality per ton is given; c) determine the relative efficiencies of the offshore and inshore Alberton dredges; d) observe the rate of attraction of predatory fish, after the passing of the dredge, to the disturbed bottom.

Caddy, J.F. (1975) 96
J. Fish. Res. Board Can., 32(8):1305-28
 Spatial model for an exploited shellfish population, and its application to the Georges Bank scallop fishery

Provides a spatial model for an exploited shellfish population and applies it to the Georges Bank scallop (*Placopecten magellanicus*) fishery, which differs from existing fisheries models employing the "unit stock" concept.

- Caddy, J.F. and R.A. Chandler (1969) 97
Manuscr. Rep. Ser. Fish. Res. Board Can.,
 (1054):15 p.
 Georges Bank scallop survey, August 1966:
 a preliminary study of the relationship
 between research vessel catch, depth, and
 commercial effort
 Provides the results of a survey of scallop
 (*Placopecten magellanicus*) populations on
 the Georges Bank so that a preliminary
 examination of the relationship between
 research vessel catch, commercial fishing
 effort, depth, and bottom types could be
 made. Catch statistics, fishing intensity,
 depths, bottom types and deck procedure are
 described for the two week cruise.
 Determinations of the mean weight of scallops
 caught per tow are made and calculated for
 each of the extremes of fishing effort,
 depth, and sediment type, while comparisons
 are made between the catches of the research
 vessel and those of commercial dredgers.
- Caddy, J.F. and R.A. Chandler (1968) 98
Manuscr. Rep. Ser. Fish. Res. Board Can.,
 (965):36 p.
 Lurcher scallop survey, March 1967
 Reports on a survey carried out in an area
 to the west of Lurcher shoal to determine the
 distribution of sea scallops, *Placopecten*
magellanicus, and their associated fauna, the
 various sampling techniques being described
 and discussed. Scallop abundance is reported
 and recruitment to the area is analysed. The
 causes of shock marks on scallop shells are
 also analysed with reference to the size at
 injury and the densities of injury within
 the areas surveyed.
- Caddy, J.F., R.A. Chandler and 99
 E.I. Lord (1970)
Tech. Rep. Fish. Res. Board Can., (168):
 9 p.
 Bay of Fundy scallop surveys 1966 and 1967
 with observations on the commercial fishery
 A report is presented which summarises the
 results obtained from three cruises to survey
 the Bay of Fundy scallop (*Placopecten*
magellanicus) grounds in 1966 and 1967. A
 descriptive history of the fishery precedes
 description of the survey methods and
 equipment used. The data obtained is
 analysed, particular emphasis being placed
 on population parameters and the effects of
 commercial fishing on the distribution of the
 scallops and effects of injury on individuals.
- Caddy, J.F. and E.I. Lord (1969) 100
Redbook ICNAF, 1968(3):89-93
 Recent developments in the Georges Bank
 scallop fishery
 This report analyses the past, present and
 future trends in the Georges Bank scallop
 fishery. Landing statistics and information
 on the most productive areas is included.
- Caddy, J.F. and E.I. Lord (1971) 101
Fish. Can., 23(5):3-7
 High price of scallop landings conceals
 decline in offshore stocks
 Provides a history of the Georges Bank
 scallop fishery giving details of 1960-
 1970 landings, and prices, reasons for the
 decline of the U.S. fishery on Georges
 Bank, fluctuations in recruitment,
 relationship between age and meat yield,
 number of vessels fishing and changes in
 fishing effort. A discussion on the
 introduction of conservation measures is
 also included.
- Caddy, J.F. and 102
 C. Radley-Walters (1972)
Manuscr. Rep. Ser. Fish. Res. Board Can.,
 (1202):9 p.
 Estimating count per pound of scallop
 meats by volumetric measurement
 The report describes a simple volumetric
 device for the estimation of scallop meat
 counts rapidly and easily and also reports
 on its accuracy and methods of use. A
 discussion of the advantages of the device
 and of the experiments carried out in the
 field is also included.
- Caddy, J.F. and 103
 A. Screedharan (1971)
Tech. Rep. Fish. Res. Board Can., (256):10 p.
 The effects of recent recruitment to the
 Georges Bank scallop fishery on meat sizes
 landed by the offshore fleet in the summer
 of 1970
 Reports on a survey carried out on the
 northern edge of Georges Bank to determine
 the accuracy of reported recruitment to the
 fishable population. Meat sizes and mean
 shell sizes were measured and their
 relationship analysed. Mean weight
 comparisons are also reported, between
 recruitment area scallops and those from
 other areas. The patterns of distribution
 of fishing effort over Georges Bank are
 described.

- Cake, E. (1973) 104
Proc. Natl. Shellfish Assoc., 63:1 (abstr.)
Larval cestode infections in several edible bivalve mollusks from the vicinity of St. Teresa, Florida

The results of the examinations of 25 specimens of 3 spp. of edible bivalves, *Argopecten irradians concentricus*, *Macrocallista nimbosa* and *Spisula solidissima raveneli*, for larval cestode parasitic infestation are presented. The location of the parasites in the specimens are recorded as are their stages of development. Determinations are made as to whether the parasites are harmful to man. Some cestode-load and host-size relationships are discussed. Reference is made to unpublished work on the 5 cestode spp. based in the same area.
- Cameron, A.M. (1975) 105
West. Fish., 39(6):26, 36
Landings down and value up despite increased costs in eastern fisheries

Presents a review of the Canadian east coast fisheries, including scallop fisheries, and provides employment, landings, value and export statistics for 1974.
- Cameron, W.M. (1955)* 106
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An investigation of scallop-drag operation with underwater television equipment
- Carbonneau, J. (1966) 107
Can. Inf. Stn. Biol. Mar. Grande-Rivière, (38):1-25
Recensement des petoncles (*Placopecten magellanicus*) et (*Chlamys islandicus*) aux Iles-de-la-Madelaine en 1966 (A census of the scallops (*Placopecten magellanicus* and *Chlamys islandicus*) around the Iles-de-la-Madelaine in 1966)
- Carpenter, J.S. (1967) 108
Commer. Fish. Rev., 29(1):47-53
History of scallop and clam exploration in the Gulf of Mexico
- Castagna, M. (1975) 109
Mar. Fish. Rev., 37(1):19-24
Culture of the bay scallop, *Argopecten irradians*, in Virginia

The paper reviews the natural history of the bay scallop, *Argopecten irradians* Lamarck, and presents a review of the development of larval and juvenile culture experiments being carried out by the Virginia Institute of Marine Science.
- Castagna, M. and W.P. Duggan (1971) 110
Bull. Am. Malacol. Union, (1971):21 p.
Mariculture experiments with the bay scallop, *Argopecten irradians*, in waters of the seaside of Virginia

Reports on experiments carried out to test the feasibility of utilizing present mariculture techniques to rear *Argopecten irradians*. Growth rates, the results of induced spawning, depth and density studies are included.
- Castagna, M. and W. Duggan (1971) 111
Proc. Natl. Shellfish Assoc., 61:80-5
Rearing the bay scallop, *Aequipecten irradians*

Reports on experimental conditioning and spawning stimulation of the bay scallop, *Aequipecten irradians*, outside of their normal spawning period. Descriptions of materials and experimental procedure employed are included. Records of larvae, early post-set, and adult scallop mortality are reported. The biological feasibility of rearing bay scallops from egg to market size is discussed.
- Castell, C.H. and D.M. Bishop (1969) 112
J. Fish. Res. Board Can., 26(9):2299-309
Effect of hematin compounds on the development of rancidity in muscle of cod, flounder, scallops, and lobster

Presents the results of experiments in which haemoglobin, catalase, myoglobin, and inorganic iron were added to blended muscle from cod, flounder, scallop (*Placopecten magellanicus*), and lobster to determine the effects of these various forms of iron on the oxidation of muscle lipids as indicated by increased malonaldehyde and rancid odours.

- Castell, C.H., D.M. Bishop 113
and W.E. Neal (1968)
J. Fish. Res. Board Can., 25(5):921-33
Production of trimethylamine in frozen cod muscle
Reports on investigations into the production of trimethylamine (TMA) in frozen cod fillets and scallop muscle under conditions where bacterial activity could not take place. The effects of different sub-zero temperatures on TMA formation is described.
- Castell, C.H., B. Smith 114
and W. Neal (1970)
J. Fish. Res. Board Can., 27(4):701-14
Effects of transition metal ions on the extractable protein of fish muscles
This paper describes the ability of trace amounts (1-50 ppm) of 12 transition metal ions to bring about changes in fish muscle proteins as indicated by their decreased extractability in salt solution. Also attempts to determine whether this reaction with the protein affects the capacity of these metal ions to catalyse oxidation of the lipids in the muscle, and whether the metal-induced changes in the protein show any considerable difference when the muscle is taken from different species of fish. *Placopecten magellanicus* muscle is included.
- Castell, C.H. and D.M. Spears (1968) 115
J. Fish. Res. Board Can., 25(4):639-56
Heavy metal ions and the development of rancidity in blended fish muscle
Reports on experiments carried out to determine the comparative effect of heavy metal ions on the development of oxidative rancidity in the blended muscles of a number of different species of commercial fish and other marine animals (including *Placopecten magellanicus*).
- Chanley, P. and J.D. Andrews (1971) 116
Malacologia, 11:45-119
Aids for identification of bivalve larvae of Virginia
Provides comparative descriptions of the larvae of 23 spp. of marine bivalves grown in the laboratory, the adults of which inhabit the "mid-north Atlantic" coastal areas of the U.S.A. The various aids to identification are described and utilized. *Aequipecten irradians* is one of the 23 spp. described.
- Cheng, T.C. (1967) 117
Adv. Mar. Biol., 5:424 p.
Marine molluscs as hosts for symbiosis with a review of known parasites of commercially important species
Informs on the relationships between the following species of pectinids and their symbiont: *Pinnotheres maculatus* and *Aequipecten irradians*. *Paranisakis pectinis* and *Pecten maximus*. *P. pectinis* and *A. maximus* and also *A. gibbus*. *Odostomia seminuda* and *A. irradians* and also *Placopecten magellanicus*.
- Chestnut, A.F. (1951) 118
In Survey of marine fisheries of North Carolina, by H.F. Taylor, *et al.* Chapel Hill, University of North Carolina Press, pp. 141-90
Pecten spp. in North Carolina
- Chiasson, L.P. (1950) 119
Manuscr. Rep. Ser. Fish. Res. Board Can., (395):26 p.
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- Chiasson, L.P. (1951) 120
Manuscr. Rep. Ser. Fish. Res. Board Can., (423):43 p.
Scallop investigations and explorations in the southern Gulf of St. Lawrence 1950
- Chiasson, L.P. (1952) 121
Manuscr. Rep. Ser. Fish. Res. Board Can., (449)
Scallop investigations in the Gulf of St. Lawrence and off eastern Cape Breton Island, 1951 (with an appendix by L.M. Dickie)
- Chipman, W.A. (1954) 122
Proc. Natl. Shellfish Assoc., 45:136-9
On the rate of water propulsion by the bay scallop

- Chipman, W.A. and 123
J.G. Hopkins (1954)
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The paper provides a history of the Tasmanian scallop fishery, based on

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Forth. Landings and their values and average
earnings statistics are also presented. The
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Abundance, dynamics, and production properties of populations of edible bivalves *Mizuhopecten yessoensis* and *Spisula sachalinensis* related to the problem of organisation of controllable submarine farms at the western shores of the sea of Japan

Provides data on the quantitative distribution, size/weight population

structure, size/age relationships, net and average population growth production figures, and seasonal variations of *Mizuhopecten yessoensis* and *Spisula sachalinensis*. Factors affecting the abundance and artificial increase in abundance are described. The hydrological conditions and biotic background of southern Primorje are also described and their suitability for the spawning and planktonic stages of both species is discussed.

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Describes intracellularly recorded depolarizing and hyperpolarizing responses to light from different cells in the retina of the scallop *A. irradians*. Morphological and physiological descriptions of the eye are also provided.

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grounds are reported. Both Canadian and United States fishing effort data and landing statistics obtained from the fishery are provided.

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The scallop resources of Bass Strait below latitude 39°12' South, 1972/73

Reports on a survey carried out in 1972 and 1973 to determine the distribution, abundance and size composition of the commercial scallop (*Pecten meridionalis*), the doughboy scallop (*Chlamys asperrimus*) and the queen scallop (*Equichlamys bifrons*) in Bass Strait below latitude 39°12' south and in depths of less than 40 fathoms. The methods and gear used are described. Length/frequency histograms for the species are provided as are maps showing the areas of capture and tables showing bottom types and species caught at each location.

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A new sub-species of *Pecten* (*Plagioctenium*) *gibbus* (Linné)
Provides a description of a new subspecies of *Pecten* (*Plagioctenium*) *gibbus* named *Pecten* (*Plagioctenium*) *gibbus carolinensis* collected off Port Royal, South Carolina.

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headings: Names - various names used in different parts of U.K.; Notes on identification; Distribution; Natural history and habits; Economic uses; Methods of fishing; Pests and destructive agencies; Statistical - weights and values of British landings 1913-1932.

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Describes a study carried out to determine the major chemical and physical changes that take place when weathervane scallop meats are stored at 32°F for varying time periods and suggests methods to control the undesirable changes that may take place. The pH, salt solubility, content of adenine nucleotides, phosphorylated sugars, and glycogen were determined on the stored meats.

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Provides the results of a search carried out over areas around the Isle of Man not previously fished, and compared with one established scallop (*Pecten maximus*) ground. The distribution of year classes in each sample and the average meat weight at each

age were determined and compared with established beds. Conservation measures on established beds are discussed.

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The influence of certain environmental factors on the maximum length of the scallop, *Pecten maximus* L.

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J. Cons. CIEM, 35(2):209-10
An estimate of natural mortality in an unfished population of the scallop *Pecten maximus*

From samples of scallops (*Pecten maximus*) taken from thirty of the most productive stations in unfished beds in the north Irish Sea, recruitment and natural mortality estimates are made. An explanation of the total mortality coefficient used is provided.

Gruffydd, L.D. and 261
A.R. Beaumont (1970)
Helgol. Wiss. Meeresunters., 20:486-97
Determination of the optimum concentration of eggs and spermatozoa for the production of normal larvae in *Pecten maximus* (Mollusca, Lamellibranchia)

Describes experiments carried out, under laboratory conditions, to determine the optimum concentration of ripe gametes

for the production of normal *Pecten maximus* larvae. Descriptions of the methods employed in the stimulation of gamete production and egg incubation are included.

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 A method for rearing *Pecten maximus* larvae in the laboratory

The paper describes a successful technique that has been developed to rear the larvae of *Pecten maximus* (L.) from fertilization to early spat. By storing mature adults at low temperatures until required for spawning, larvae can be produced throughout the year. The temperature, salinity, feeding and egg density requirements in the tanks are reported. The use of antibiotics for the control of bacterial populations in the tanks, and the sterilisation of utensils is described.

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 The glands of the larval foot in *Pecten maximus* L. and possible homologues in other bivalves

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Gutsell, J.S. (1928) 265
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 Scallop industry of North Carolina

Provides an account of scallop fishery of North Carolina under the following headings: Reasons for importance of scallop fishery; Historical account - medieval-1918; Extent and value of present day fishery - number employed in fishery, \$ value of boats and equipment; Natural history of the scallop; Food value - chemical analysis of adductor muscle; Distribution of scallop grounds; Apparatus and methods for taking scallop;

Preparation for market - shucking, preparation auction procedures; Marketing - main consumption areas, problems of over production; Prices and wages - wholesale prices, fishermen earnings; Legal regulation of the fishery - closed seasons, licenses; Conservation - active and regulatory conservation, new inlets; Summary.

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Provides information on the biological characteristics, systematics, and distribution of *Pecten maximus*, *Chlamys islandicus* and *C. opercularis*.

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 A rapid technique for recording sizes of juvenile pelecypod molluscs

Describes a rapid technique for recording the valve size of bay scallops, *Argopecten irradians*, using an ordinary photocopier. The advantages of the method are discussed.

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 A.C. Simpson (1962)
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Yield estimates in exploited populations of *P. maximus*.

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 Ph.D. Thesis, Florida State University, 150 p.
 Issued also as: *Diss.Abstr.Int.*, 32B:6197
 The adenosine deaminases of the bay scallop and several other bivalve molluscs

Describes the methods used to purify the adenosine deaminase from the digestive diverticulum of the bay scallop (*Argopecten irradians*) and provides results of the

following enzyme studies made: electrophoresis of the purified enzyme; estimation of molecular weight; spectral properties of the enzyme; determination of isoelectric point; stability of enzyme at differing pH; effect of substrates on the reaction velocity and the effect of pH on these reactions. Similar experiments carried out on other bivalve molluscs for comparison are also reported.

Harbison, G.R. and J.R. Fisher (1973) 271
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Comparative studies on the adenosine deaminases of several bivalved molluscs

Compares the enzyme of the bay scallop *Argopecten irradians* with digestive diverticular adenosine deaminases from *Alrina serrata*, *Modiolus squamosus* and *Macrocallista rimbosa*.

Hardy, R. and J.G.M. Smith (1970) 272
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Catching and processing scallops and queens

Provides descriptions of the morphology of *Chlamys opercularis* and *Pecten maximus* and information on the fishery, handling, processing and freezing methods, and waste disposal in the United Kingdom. The composition of the contents of the shell are also analysed.

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Annual reproductive cycles in the Tasmanian commercial scallop *Notovola meridionalis*

Harrison, A.J. (1965) 274
Aust. Fish. News, 24(6):9, 11, 13
Tasmania scallop fishery and its future

Provides a history of the scallop fishery of Tasmania. Presents and discusses catch per unit effort data from the fishery. Future trends are also discussed.

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Reports on researches in the ICNAF area in 1965. 1. Canadian research report, 1965. B. Subareas 4 and 5

Reports on landings, areas fished, fishing effort and research programmes carried out in 1965 into the scallop (*Placopecten magellanicus*) populations of the Atlantic coast.

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The discharge of impulses in the optic nerve of *Pecten* in response to illumination of the eye

Describes the physiology of the eye of *Pecten* (*Pecten irradians*) with relation to discharge of impulses in the optic nerve, during illumination of the eye, as detected by oscillographic recordings.

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An investigation of the movement of the scallop *Pecten maximus*

Reports on investigations into the movement of *Pecten maximus* in an experimental area off Dunneville Island (Strangford Lough, Ireland)

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Present status of major marine cultivation and propagation in Hokkaido and some problems of the research activities

Reports on the present status of major marine cultivation and propagation in Hokkaido and some problems of research on the productivity of scallops (*Pecten yessoensis*) and other organisms.

- Havinga, B. (1934)* 280
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Kammuscheln (The scallop)
Describes the geographical distribution, structure and function of organs, habitat, swimming habit, propagation, and exploitation of *Pecten maximus* and *P. opercularis*.
- Hayashi, K. and M. Yamada (1975) 281
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Studies on the lipids of shell-fish. 5.
On the component fatty acids in the giant ezo scallop (in Japanese)
Presents studies on the characteristics and the fatty acid compositions of the neutral lipids obtained from the adductor muscles and soft parts of the removed adductor muscle, or digestive diverticula of the giant ezo scallop *Patinopekten yessoensis*.
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The relationship of the pea crab, *Pinnotheres maculatus* Say, with the scallops *Argopecten irradians concentricus* (Say) and *Argopecten gibbus* (Linné)

Compares the distribution and abundance of *P. maculatus* with *A. irradians concentricus* and *A. gibbus* with which the crab is commensal. Samples were taken from Bogue Sound, North Carolina. The effect of the presence of the crab within a scallop, on the scallop's growth rate, is discussed.

Kruczynski, W.L. (1972) 363
Chesapeake Sci., 13:218-20
The effect of the pea crab, *Pinnotheres maculatus* Say, on the growth of the bay scallop *Argopecten irradians concentricus* Say

Bay scallops, *Argopecten irradians concentricus* Say, collected from shallow water grass beds in Bogue Sound, North Carolina were opened and inspected for the presence of crabs. The effects of the presence of crabs on the growth of scallops is determined.

Kruczynski, W.L. (1973) 364
Biol. Bull. Mar. Biol. Lab., Woods Hole, 145:482-91
Distribution and abundance of *Pinnotheres maculatus* Say, in Bogue Sound, North Carolina

Reports on the distribution and abundance of the larval stages and adult pea crab, *Pinnotheres maculatus* Say, a symbiont found in the mantle of many bivalve molluscs including *Argopecten irradians concentricus* Say, its most common host. Scallop distribution and abundance in Bogue Sound is also reported. The ways in which crab distribution may be controlled are discussed.

Kupper, M. (1915) 365
Jena, Gustav Fischer, 312 p.
Entwicklungsgeschichtliche und neuro-histologische Beiträge zur Kenntnis der Schorgane am Mantelrande de Pecten-Arten (Ontogenetic and neuro-histological contributions to the knowledge of the eye of the mantle margin of Pecten)
Species studied include *Pecten opercularis*, *P. varius*, and *P. jacobaeus*.

Kusakina, A.A. (1973) 366
Ekologiya, 4:89-93
Sopryazhennyye urovin teploustoichivosti al'dolazy i kholinesterazy myshechykh gomogenatov blizkikh vidov vodnykh zhirotykh (Linked thermal stability levels of the aldolase and cholinesterase of muscle homogenates of similar species of aquatic animals)

Investigates the correctness of the laws governing the thermal stability of various protein preparations as proposed by B.P. Ushakov. Special reference made to the thermal stability of the aldolases and cholinesterases of 6 pairs of similar aquatic animals, one of which is *Chlamys islandicus*. Confirmation of the Ushakov rule is provided by the data obtained. The linkage of thermal stability levels of proteins in speciation is discussed.

Kuznetsov, A.P., E.D. Korner 367
and N.A. Kholm (1966)
Tr. Inst. Okeanol., 81:179-87
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Reports on studies into the ecology and amino-acid composition of *Pecten maximus* from shallow water grounds in the western English Channel. The ability of *P. maximus* to sustain a commercial fishery is discussed, while amino acid composition is determined and compared with other suspension feeding species.

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pag.var.
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for molluscal types found in the Mediterranean,
providing morphological descriptions (with
plates) and geographical distributions for
each type. Includes the following pectinids:
Chlamys (Aequipekten) opercularis (Linné),
Pecten jacobaeus (Linné), *P. (Chlamys) varius*
(Linné).
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(quarter ending Dec. 31):3
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J. Physiol., Lond., 175:9-10
The eye of the scallop; a concave reflector
- Land, M. (1965) 371
J. Physiol., Lond., 179:138-53
Image formation by a concave reflector in the
eye of the scallop *Pecten maximus*
- Land, M. (1966) 372
J. Exp. Biol., 45:83-99
Activity in the optic nerve of *Pecten maximus*
in response to changes in light intensity
and to pattern movement in the optical
environment
Examines the responses of the proximal and
distal retinae of *P. maximus* to non-
directional stimuli and investigates the nature
of the activity in the optic nerve in response
to patterned stimuli. An attempt is made to
rationalise the latter in terms of the effect
of the image on single retinal cells. The
findings are discussed in relation to the
behaviour of *P. maximus*.
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A multilayer interference reflector in the
eye of scallop, *Pecten maximus*
- Lawrence, K. (1966) 374
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Commercial scalloping (abstr.)
Describes the fishing method employed on a
New Bedford commercial scallop dredger
fishing for *Placopecten magellanicus*.
Cost of new scallop dredger and annual
operating expenses are described.
- Lear, D.W. and G.G. Pesch (1975) 375
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Environ. Protect. Agency, (15):212 p.
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Delaware and Maryland
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observations made over a twelve month
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 Reports on spontaneous electrical and mechanical activity in the smooth and striated parts of *P. maximus* adductor muscle recorded simultaneously and continuously for long periods of time with the animal intact in water. The mechanisms of rapid swimming movements, slow phasic contractions, and the maintenance of a state of tension are described.
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 The Scottish fishery for scallops and queens
 Morphological descriptions of *Pecten maximus* and *Chlamys opercularis* are provided. The methods and gear employed in the Scottish fishery are described and an assessment of the present state of the fishery and its prospects for the future are described.

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 the scallop *Pecten maximus* (L.) in the Isle
 of Man

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 carried out to estimate the number of scallops
 (*P. maximus*) of commercial size on a given
 area of good fishing ground and also to gain
 some idea of the effects of commercial
 dredging on the beds. Information is provided
 on the marking media used, percent recapture,
 the number of scallop dredgers, and the areas
 dredged. An estimate of the total commercial
 scallop population is also given. The
 dangers of over-exploitation are discussed.

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 The stocks of scallops (*Pecten maximus*)
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A report of the development of the scallop
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opercularis) fishery centred off S.W. Scotland
 is presented. From samples collected and
 observations made on commercial fishing trips
 age composition and catch-per-unit-effort
 data are presented for a 4ft commercial
 dredge and a 4ft dredge with fine mesh used
 in three areas during the 1966-67 and 1971-72
 seasons.

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 The scallop fishery off South-West Scotland

A report of the development of the scallop
 (*Pecten maximus*) and queen (*Chlamys*
opercularis) fishery centred off S.W. Scotland
 is presented. Age composition and catch-per-
 unit-effort data are compared for the two
 major fishing areas (the Clyde and the area
 west of Kintyre) for the years 1965 to 1970.

Mason, J. and J. Drinkwater (1973a) 448
Ann.Biol., 30(1973):213-4
 The stocks of scallops, *Pecten maximus*, in the
 Clyde area and west of Kintyre in 1972-73

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 in the Clyde area and west of Kintyre
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 Useful means of income during winter

This article presents a review of the
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 information on the type and number of
 boats engaged in the fishery, the types
 of gear used, fishing methods, and
 processing and packing. Landings and
 their values for the year 1949-61 are
 also provided. Seasonal variation in
 condition index is investigated, and the
 locations of newly discovered scallop
 grounds in the western areas of Scotland
 are provided with details of their
 present state.

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 The Scottish scallop fishery

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 Environmental variability at the
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 Provides a report of the northern-most limit of *Placopecten magellanicus*.
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 In Recent sediments, Northwest Gulf of Mexico - a symposium summarising the results of work carried on in Project 51 of American Petroleum Institute, 1951-1958, edited by F.P. Shepard, F.B. Phleger and T.H. Van Andel. New York, American Institute of Petroleum, pp. 302-737
 Ecology and distributional patterns of marine macro-invertebrates, northern Gulf of Mexico
 Describes the distribution of macro-invertebrate assemblages in the northern Gulf of Mexico and how they are affected by climatic conditions. Descriptions of the environment pertaining to the subhumid or transition zone and the semiarid zone are provided. Distribution, abundance and size ranges of the following commercial species of scallops are provided: *Aequipecten irradians amplicostatus* and *A. gibbus gibbus*.

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and a review
Describes the study of benthic communities,
using Hadley Harbour in Massachusetts as an
example of a natural ecosystem. The
distribution of *Aequipecten irradians* within
the study area is reported and its relation-
ship to other benthic organisms is described.
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- Pendleton, J.A. (1963) 538
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Serological studies on the bay scallop
Aequipecten irradians
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irradians and samples of the calico scallop
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reactivity of these scallops with the sea
scallop, *Placopecten magellanicus*, was
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surveys off the Oregon and Washington coast
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and size ranges of *Patinopecten caurinus*
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yield figures are included. The probable
effects of heavy infestations on the shell
boring worm *Polydora* spp. on the scallop
populations are reported.
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C. opercularis in suspended cages in Loch
Sween, Scotland. Provides the mean sizes of
the queens from November 1969 (spat) to
November 1971 (commercial size). Spat
settlement in the cages is reported.
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systems may be developed are also
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- Pho, D.B. et al. (1970) 541
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- Pickett, G.D. (1975) 542
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The growth of queen scallops (*Chlamys*
opercularis), in cages off Plymouth,
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Describes the settlement of *C. opercularis*
in cages suspended in Plymouth Sound,
southwest England for the years 1974-75.
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different seasons and the period of
maximum growth. Also offers an
interpretation of the growth rings on
shells providing easier age determination.
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Techniques for surveying queen scallop
populations: experiments off southwest
England in May-June 1974
Reports on explorations of a number of
areas along the Devon and Cornwall coast
for the presence of *Chlamys opercularis*.
The distribution and density of both
adults and newly-settled spat populations
are given. Comparisons of the various

types of gear, tested for sampling, are made. The effectiveness of diving, and the use of a remote controlled underwater scanning television system as practical sampling methods are investigated.

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Bull. Cent. Etud. Rech. Sci., Biarritz, 9(4):263-457
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 (Fishing and shellfish culture in northern Brittany. 1.)

An extensive biological, economic and geographic survey of the fisheries of, and shellfish culture in North Brittany. The scallop species included in this two part paper are coquilles Saint-Jacques (*Pecten maximus* L. and *P. jacobaeus* L.) and petoncle (*Chlamys opercularis* L. and *C. varia* L.)

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 (Fishing and shellfish culture in northern Brittany. 2.)

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 A variation in the distribution of a spionid polychaete in the Woods Hole region
 Describes the different frequencies of occurrence in two localities in the Woods Hole region, Massachusetts, of *Polydora ciliata*, a spionid polychaete, which lives endo-commensally on the shells of *Pecten irradians*.

Plimmer, R.H.A. (1921) 548
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 Analyses and energy values of foods
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 Rapport préliminaire sur les stocks de pétoncles géants (*Placopecten magellanicus*) aux Iles-de-la-Madeleine (Preliminary report on the stocks of *Placopecten magellanicus* from the Magdalen Islands)

Presents the findings of a research programme undertaken to study the reasons for the

decrease in the Magdalen Islands scallop fishery during 1971 and 1972. The findings are based on fisheries statistic figures, data sampling of the sea, and biometry of the species (*Placopecten magellanicus*).

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 Summarises the main observations, and presents the conclusions of a study on the populations of *Chlamys islandica* in the Jacques-Cartier Strait.

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 [Includes Appendix by Myre, G. entitled "Prospection des bancs de pétoncles de la Côte-Nord en 1973," pp. 19-23]
 A study based on scallop catches from inventory cruises in the Jacques-Cartier Strait during the period 28 Aug.-30 Sep., 1973. The depth distribution of stocks and the relationship between length, and location and depth are reported. The ratio of adductor muscle to total weight is determined. The possibility of the stocks being able to sustain a commercial fishery are discussed.

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- Poore, G.C.B. and S. Rainer (1975) 553
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 Distribution and abundance of soft-bottom molluscs in Port Phillip Bay, Victoria, Australia
 The distribution of soft-bottom molluscs of Port Phillip Bay, Victoria, is examined in terms of abundance. The distribution of feeding types and patterns of diversity are related to environmental variables. *P. alba* is included.
- Porter, H.J. (1971) 554
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 Mollusks coincident with North Carolina's calico scallop fishery
 Comparisons are made between the numbers and different species of molluscs coincident with the North Carolina calico scallop (*Argopecten gibbus*) fishery during the years 1965-1968 and 1971. The samples for 1971 were taken from the stomachs of *Astropecten articulatus*. The predation of *Astropecten* on young scallops and its possible use in determining settlement are discussed.
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 Mollusca from North Carolina commercial fishing grounds for the calico scallop *Argopecten gibbus* (Linné)
 128 species of molluscs occurring on known calico scallop (*Argopecten gibbus*) grounds, off North Carolina, are listed. Their abundance, the types of substrate from which they are trawled, details of previous North Carolina records, and the northern range extensions where appropriate are reported. Other species, which have been found on a previous survey, are listed.
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 The range of the sea scallop
 Provides the latitudes between which the sea scallop, *Placopecten magellanicus* can be found in commercial quantities. The northernmost and southernmost extent of the species is also reported and a discussion of the northernmost limit given by Packard (1867) is provided.
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- Posgay, J.A. (1958) 560
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 Photography of the sea floor
 Photographs of sea scallop density on sea floor. The advantages of the underwater camera for the photography of bottom animals over traditional methods i.e.: dredging and grab sampling are discussed. The camera described in the paper was, at time of writing, being used to survey sea scallop, *Placopecten magellanicus*, beds of Georges Bank, Canada. The method of systematically photographing an area of sea bed is described and ways of simplifying the print development and analysing processes, which can be very time consuming, are discussed.
- Posgay, J.A. (1963) 561
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 Tagging as a technique in population studies of the sea scallop
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returned shells are used to determine the movement of the beds, estimate growth rates, validate the technique of locating annual rings and deduce the season of ring formation.

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 An observation on the spawning of the sea scallop (*Placopecten magellanicus*) on Georges Bank

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 Use of gamma radiation for the preservation of scallop meat

Reports on a study designed to show the effect of sub-sterilization doses of gamma radiation on the storage life, at 0°C of sea scallops (*Placopecten magellanicus* Gmelin) and the effect on certain chemical changes which take place at this temperature.

Prakash, A., J.C. Medcof and 565
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 Paralytic shellfish poisoning in eastern Canada

Reports on the cause, distribution, accumulation and elimination, effects and control, and characteristics, of paralytic shellfish poisoning in shellfish around the coast of eastern Canada. One of the species monitored is the sea scallop (*Placopecten magellanicus*).

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 Status of the New England sea scallop fishery

Provides a review of the New England sea scallop, *Pecten grandis* (Solander), placing particular emphasis on New Bedford. Maps showing the relative abundance of sea scallops from 1944-1952 on Georges Bank grounds are provided. A tentative prediction as to the future of the scallop industry is included.

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 La coquille St. Jacques (*Pecten maximus*). Résumé de nos connaissances pratiques sur le mollusque (The scallop, *Pecten maximus*. A résumé of our practical knowledge of this mollusc)

Reports on studies into the bionomics, reproduction, embryology, distribution of commercial stocks, and fauna associated with the scallop *Pecten maximus* around the French coasts and in the English Channel. The French scallop fishery is investigated, details of the boats, gear, fishing methods, landings and values being provided. An analysis of the size distribution of the commercial stocks is presented. A list of regional French and foreign vernacular names relating to the scallop is also provided.

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 A study on biochemical changes in the adductor muscle of scallop (*Placopecten magellanicus*) on icing at 0°C and storage at -23°C.

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 Analysis of demand for fish and shellfish (Atlanta, Georgia Consumer Panel)
 From data provided from 160 households over a 5 year period (1958 through 1962) an analysis of demand for fish and shellfish is provided which includes separate statistics on consumption of fresh, frozen and canned scallops in Atlanta, Georgia. The results obtained are discussed in Gates, Malliesan and Griscan (1974).

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yessoensis Jay is included.
- Read, K.R.H. (1964) 576
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 Ecology and environmental physiology of some
 Puerto Rican bivalve molluscs and a
 comparison with boreal forms
 The heat resistance of various bivalve
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 was studied in aerated sea water and in sealed
 jars. This was correlated with the species
 ability to survive in intertidal or micro-
 aerophilic habitats.
- Reddiah, K. (1959) 577
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 Studies on the biology of Manx pectinids
 (lamellibranch) and on the copepods associated
 with some invertebrates
 Reports on comparative biological studies of
 seven species of pectinid mollusc, including
Pecten maximus (L.), *Chlamys opercularis* (L.)
 and *C. varia* (L.), in Manx waters. The
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 of the spawning and the morphological
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 spp. investigated, one of which was
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- Rees, C.B. (1954) 579
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 Continuous plankton records; the
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 the North Sea 1950-51
 Records the distribution of lamellibranch
 larvae in the North Sea in 1950 and 1951,
 including the larvae of *Pecten maximus*
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 A new scallop trawl for North Carolina
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 details, is provided. Operation and
 performance is compared with an 8ft Georges
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 trawl are listed.
- Robbins, S.F. (1962) 585
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 description of *Pecten magellanicus* and
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 and yield off eastern Florida, 1967-1968
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 survey of the calico scallop (*Argopecten*
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 history, distribution, abundance, yield,
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 Scallops off the Cornish coast between
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 Size and age distribution of the stocks,
 and variations in roe condition were
 determined.
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Food G.B., (13):6 p.
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 the state of scallop stocks (*Pecten*
maximus) off Plymouth. Sampling and tagging
 methods are described. The positions of
 the highest catch areas are included. Size
 and age distribution of the stocks were
 determined. The author discusses the
 future of the scallop fishery.

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 The results of two exploratory scallop surveys, carried out along the coast of Oregon to locate and delineate concentrations of *Patinopecten caurinus*, are presented. The catch rates of an 8ft (2.44m) New Bedford-type scallop dredge were determined and its catch efficiency was compared with that of a modified 400 mesh eastern otter trawl. Size distribution, abundance and distribution were determined and meat yield analyses were undertaken.
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- Sakaguchi, M., D.F. Hiltz and W.J. Dyer (1975) 597
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 Describes experiments carried out to study the glycolytic metabolic pathways in post-mortem adductor muscle of the sea scallop (*Placopecten magellanicus*), during iced storage, by means of ^{14}C - pyruvate injected into the muscle, immediately after and up to four days after shucking.
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 Daily activity rhythm of two Mediterranean Lamellibranchia (*Pecten jacobaeus* and *Lithophaga lithophaga*) regulated by light-dark period
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 Describes the effects of parasitization on the
 scallop *Pecten alba* by a bucephalid trematode,
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 bottom encountered are provided. The results
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 Bay scallops *Argopecten irradians*, collected in estuarine waters near Beaufort between January 1963 and June 1966 were examined for the presence of gamma radioactivity from ⁵⁴Mn fallout. Comparisons with other lamellibranch molluscs, from the same area, are made. Analyses of the internal organs were carried out to determine the regions of greatest concentration. Mechanism of

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the *in-vivo* incorporation of choline methyl- ^{14}C , ethanolamine-1-e- ^{14}C and serine-3- ^{14}C are described.

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 Induction of spawning in the scallop *Pecten yessoensis* Jay
 Investigates the factors which induce or inhibit the spawning of *Pecten yessoensis*. Ovary developmental changes in female scallops and the spawning actions of male scallops are also reported.
- Yamamoto, G. (1951c) 775
Sci. Rep. Tôhoku Univ. (Ser. 4 Biol.), (19):
 11-6
 Ecological note on transplantation of the scallop (*Pecten yessoensis*, Jay) in Mutsu Bay, with special reference to the succession of the benthic communities
 Reports on the ecological effects of *Pecten yessoensis* transplantation in Mutsu Bay during 1949. Comparisons are made between the benthic communities before and after transplantation and the reciprocal relation between each species is investigated.
- Yamamoto, G. (1951d) 776
Bull. Jap. Soc. Sci. Fish., (17):53-6
 Ecological study on the spawning of the scallop *Pecten (Patinopecten) yessoensis* in Mutsu Bay (in Japanese, with English summary)
 Describes the methods used to induce spawning in *P. (Patinopecten) yessoensis* in the laboratory and at which times of year the induction is most effective. Discusses the environmental changes, and their cause, that most probably induce the natural spawning of scallops in Mutsu Bay.
- Yamamoto, G. (1951e) 777
Sci. Rep. Tôhoku Univ. (Ser. 4 Biol.), (19):
 161-6
 On acceleration of maturation and ovulation of the ovarian eggs *in vitro* in the scallop, *Pecten yessoensis* Jay
 Investigates inducement of ovulation in excised ovarian eggs, *in vitro*, in *Pecten yessoensis* by thermal stimulation in sea water, and Ringer's solution seawater plus 2% glucose solution mixture.
- Yamamoto, G. (1952) 778
Sci. Rep. Tôhoku Univ. (Ser. 4 Biol.), (19):
 247-54
 Further study on the ecology of spawning in the scallop in relation to lunar phases, temperature and plankton
 Investigates the effects of the lunar phase and water temperature on the spawning of *Pecten yessoensis* in Mutsu Bay. A correlation between the spawning of the scallop and the progression in the plankton community is also reported.

- Yamamoto, G. (1952a) 779
Sci. Rep. Tôhoku Univ. (Ser. 4 Biol.), (19):
 302-14
 Seasonal changes of benthonic communities
 and succession in the benthos caused by the
 production of the scallop
 Reports on the seasonal changes in numerical
 and gravimetric benthos productivity in
 samples collected bi-monthly from a naturally
 propagated area, containing *Pecten yessoensis*,
 a transplanted area and a control area off
 and around the shores of Mutsu Bay.
- Yamamoto, G. (1953) 781
Sci. Rep. Tôhoku Univ. (Ser. 4 Biol.), (20):11-32
 Ecology of the scallop, *Pecten yessoensis* Jay
 Reports on laboratory experiments concerning
 spawning inducement, larval settlement and
 general biology of *Pecten yessoensis*. In
situ investigations in Mutsu Bay on factors
 controlling spawning, the sequence of the
 plankton community in relation to spawning,
 benthic communities with special reference to
 the scallop, scallop transplantation, and the
 succession of communities affected by scallop
 production are also reported.
- Yamamoto, G. (1955) 782
Bull. Mar. Biol. Stn. Asamushi Tôhoku Univ.,
 7(2-3-4):69073
 On the rearing of the scallop spat in tank
 and pool
 Reports on investigations into the growth
 and mortality of *Pecten yessoensis* spat
 having shell lengths of between 6-10 mm.
 in concrete rearing tanks, the figure
 obtained being compared with those of scallop
 spat growing under natural conditions.
- Yamamoto, G. (1956) 783
Sci. Rep. Tôhoku Univ. (Ser. 4 Biol.), (22):
 149-56
 Habitats of spats of the scallop, *Pecten*
yessoensis Jay, which turned to bottom
 life
 Reports on the mortality rates of *Pecten*
yessoensis spat from three different
 habitats arranged mosaically along the
 coast of Mutsu Bay.
- Yamamoto, G. (1956a) 784
Jap. J. Ecol., 5(4):172-5
 On the behaviour of the scallop under
 some environmental conditions with
 special reference to effects of suspended
 silt, lack of soluble oxygen and others
 on ciliary movement of gill pieces (in
 Japanese with English summary)
 Reports on the mortality rates of *Pecten*
yessoensis spat, in Mutsu Bay, at
 different times of the year. Experiments
 carried out to determine the causes of
 mortality are described and the results
 discussed.
- Yamamoto, G. (1957) 785
Sci. Rep. Tôhoku Univ. (Ser. 4 Biol.), (23):
 73-82
 Tolerance of scallop spat to suspended
 silt, low O₂ tension, high and low
 salinity, and sudden temperature changes
 Discusses the possibility that young
 scallops may develop a greater tolerance
 to above environmental changes.
- Yamamoto, G. (1960) 786
Bull. Mar. Biol. Stn. Asamushi Tôhoku Univ.,
 10(2):149-52
 Mortalities of the scallop during its
 life cycle
 Describes the developmental stages of the
 larvae of *Pecten yessoensis* during the
 first forty hours and investigates
 mortality through this period to spat
 formation, the juvenile period and
 adulthood.
- Yamamoto, G. (1967) 787
Sci. Rep. Tôhoku Univ. (Ser. 4 Biol.), (33):
 519-26
 Food relations of dominant animals in
 marine benthic communities in Mutsu Bay
- Yamamoto, G. and 788
 T. Eto (1950)
Aomori Ken Suisan Shigen Chôsa Chûkan
Hôkoku (Prelim. Rep. Fish. Res. Aomori Prefect.),
 (10):56-60
 On the transplantation of the young
 scallop in Noheji Bay (in Japanese)

- Yamamoto, G. and T. Eto (1951) 789
Aomori Ken Suisan Shikenjo Suisan Jôho
(Rep. Exp. Stn. Fish. Aomori Prefect.),
 (3):85-7
 A biological note on the transplantation
 of the scallop in Mutsu Bay
- Yamamoto, G. and C. Nishioka (1943) 790
Bull. Jap. Soc. Sci. Fish., 11:219
 On the development of the scallop by
 means of artificial fertilization (in
 Japanese)
- Yamamoto, G. et al. (1950) 791
Aomori Ken Suisan Shigen Chôsa Chûkan Hôroku
(Rep. Fish. Res. Aomori Prefect.), (1):
 145-67
 Studies on propagation of the scallop in
 Mutsu Bay (in Japanese)
- Yeater, L.W. (1965) 792
 M.Sc. Thesis, Florida State
 University, 66 p.
 Studies on the ecology of the commensal
 crab, *Pinnotheres maculatus* Say
 Comparisons are made between the
 acceptance of *Atrina rigida* and *Aequipeecten*
irradians concentricus as hosts for the
 commensal crab *Pinnotheres maculatus*, at
 different temperatures. Possible reasons
 for the attraction of *Pinnotheres maculatus*
 to either host are discussed. Two
 previously unreported pelecypod hosts are
 listed as acceptable to *Pinnotheres*
maculatus in the laboratory.
- Yonge, C.M. (1936) 793
Mem. Mus. Hist. Nat. Belg., 3(2):77-100
 The evolution of the swimming habit in the
 Lamellibranchia
 Reports on investigations into the
 action and working of the swimming
 mechanism in *Pecten* and *Lima* and its
 evolution.
- Yonge, C.M. (1951) 794
Univ. Calif. Publ. Zool., (55):409-20
 Observations on *Hinnites multirugosus*
 (Gale)
 Comparisons are made between *Hinnites*
multirugosus, a mollusc which becomes
 cemented to substratum unusually late in
 its development, and *Pecten marinus* and
P. tenuicostatus, molluscs that remain
 free throughout their lives. Comparisons
 are also made with some other species of
 the genera, e.g. *Spondylus* and *Plicatula*.
- Yoo, S.K. (1969)* 795
Bull. Pusan Fish. Coll., 9(2):165-87
 Food and growth of the larvae of certain
 important bivalves (in Korean, with
 English summary)
 Reports on a series of experiments relating
 to the feeding and growth of three
 commercially important bivalves, including
Patinopeecten yessoensis, using larvae
 produced by induced spawning methods.
 The larvae were fed on cultured algal food
 organisms and their preferences are noted.
 The effects of larval density on growth is
 also investigated.
- Young, S.A. (1930) 796
Annu. Rep. Fish. Branch Can. Dep. Mar. Fish.,
 63(1929-30):250-4
 Scallop investigations in 1929. Report
 of scallop investigations by SS ALBERTON
 in waters off Prince Edwards Island
- Zagalsky, P.F., D.F. Cheesman and H.J. Ceccaldi (1967) 797
Comp. Biochem. Physiol., 22:851-71
 Studies on the carotenoid-containing
 lipoproteins isolated from the eggs and
 ovaries of certain marine invertebrates
- Zhyubikas, I.I. (1969) 799
Vest. Leningr. Univ. (Biol.), (21):21-32
 Some data on biology of *Pecten*
yessoensis (Jay) in Kuril-Sakhalin area
 (in Russian with English summary)
 Presents a report on the distribution,
 population size structure, feeding,
 reproduction, shell fouling organisms and
 enemies of *Pecten yessoensis* (Jay) in the
 shallow area of the South-Kuril Strait and
 Aniva Bay (South Sakhalin).

- Zinck, A.H. (1932)* 800
Ottawa, Canada, Report of Captain to
Department of Marine Fisheries, Fishery
Branch, Department of Fisheries (Ms)
Reports of scallop investigations in 1932
- Zitko, V. *et al.* (1971) 801
J. Fish. Res. Board Can., 28(9):1285-91
Methylmercury in freshwater and marine fishes
in New Brunswick, in the Bay of Fundy and on
the Nova Scotia Bank
- Methyl mercury as mercury, ppm, and wet
weight were determined for the giant scallop
Placopecten magellanicus.
- Zs.-Nagy, I. (1971) 802
Ann. Inst. Biol., Tihany, 38:117-29
Pigmentation and energy dependent Sr⁺⁺-
accumulation of molluscan neurons under
anaerobic conditions
- Anon. (1800)* 803
Fishery Industries of the U.S., Vol. 2,
Section V:565-81
The scallop fishery
- Anon. (1914) 804
Econ. Circ. U.S. Bur. Fish., (7):5 p.
Opportunity for a new scallop fishery off
the middle Atlantic coast
- Reports on the discovery of commercial
quantities of sea scallops (*Placopecten*
magellanicus (Gmelin)) off the middle
Atlantic coast of the U.S. in 1913. A
morphological description of the sea scallop
is provided and the distribution and
population density of middle Atlantic coast
scallop beds is reported, as is the location
of other productive Atlantic coast beds.
Catch statistics and market prices for the
U.S. scallop fishery from 1908-1913 are also
included.
- Anon. (1920) 805
Bienn. Rep. Comm. Sea Shore Fish. State Maine,
(2):33-7
The scallop industry
- Describes the boats and equipment used in
the giant Maine scallop industry, based on
Pecten tenuicostatus Mighel, and reports
on investigations into life history of
Pecten irradians on the Atlantic coast of
U.S.A. Information on the distribution,
- size and characteristics of *P. irradians*
is included. The effect on the fishery
due to increased predation by *Asterius*
forbesii is also reported.
- Anon. (1929) 806
Annu. Rep. Fish. Branch Can. Dep. Mar. Fish.,
(62):210-1
Scallop investigations
- Anon. (1952) 807
Atl. Fisherman, 33(2):21
Underwater photography used in
Massachusetts scallop study
- Describes the working of a newly developed
underwater camera, used to photograph
scallop beds at depths up to 150' near
Nantucket Island, Massachusetts. From the
photographs scallop distribution is
determined.
- Anon. (1952a) 808
Fish. Gaz., 69(8):31
Modern scallop production
- Reports on the fishing gear and methods
employed in the Cape Cod, Long Island
scallop fishery. Details of scallop drags,
on deck processing of scallops, and catch
regulations are included.
- Anon. (1954) 809
Rev. Trav. Off. Pêches Marit., Nantes,
18(2-4):89-94
Recherches sur la conchyloculture et sur
les coquillages (Investigations
concerning shellfish culture and shells)
- Provides a detailed report of studies
into the distribution, density, Atlantic
and Channel coast scallop fishing grounds
and fisheries, length distribution,
spawning, growth rates and age distribution
of commercial catches of *Pecten maximus* and
Chlamys varia.
- Anon. (1957) 811
World Fish., 6(7):48-9
Scallops photographed underwater
- Describes the swimming action of scallops
(*Chlamys opercularis*).

- Anon. (1960) 812
Fish. Tech. Rep. Minist. Agric. Fish. (N.Z.),
 (2):51 p.
 Scallop investigation, Tasman Bay 1959-60
 Reports on studies into the biology, spacial distribution, abundance, spawning, gonad development in juveniles, replacement stock, growth rate, length frequency, dredging techniques, and processing of *Pecten novaezelandiae* in the Tasman Bay area.
- Anon. (1960a) 813
Commer. Fish. Rev., 22(7):41-3
 Large beds of calico scallops found off Florida east coast, M/V SILVER BAY cruise 23 (April 13-May 6, 1960)
 Reports on cruise 23 of M/V SILVER BAY, during which a large stock of calico scallop (*Pecten gibbus*) were found off the east coast of Florida. The gear and methods used are described and a map showing areas dredged and the types of gear employed at particular stations is included. Size distribution and meat yield figures for captured scallops are provided.
- Anon. (1960b) 814
Commer. Fish. Rev., 22(9):29-30
 Commercial scallop dredge demonstrated to fishermen, M/V SILVER BAY cruise 24
 Between May 26-June 14 1960, scallop fishing gear and methods were demonstrated to members of the fishing industry in a limited buoyed area approximately 9 miles north of Bethel Shoals buoy. The catch rate for an 8 ft modified New England-type scallop dredge is reported. Limited explorations for red snapper (*Lutianus aya*) were also undertaken and a list of species in the mixed fish catches are provided.
- Anon. (1960c) 815
Commer. Fish. Rev., 22(10):42-3
 Savannah River-Cape Hatteras offshore area surveyed for fish and shellfish resources, M.V. SILVER BAY cruise 25
 Eighteen drags were made with an 8ft modified Georges Bank scallop dredge, with 1½" mesh liner, to determine the seasonal availability of calico scallops (*Argopecten gibbus*) in known areas east of Core Banks. The depths at which the best catches were

made, and determinations of the average size and meat yield per bushel of live scallops are reported.

- Anon. (1960d) 816
Commer. Fish. Rev., 22(12):41-2
 Calico scallop fishery in Florida
 Reports on the location of extensive scallop (*Pecten gibbus*) grounds off the east coast of Florida and North Carolina. Depth and distribution, size ranges, experimental catch rates, meat yield, processing methods, meat quality, and market situation are also reported.
- Anon. (1961) 817
Commer. Fish. Rev., 23(1):32-4
 Extensive survey made off Florida east coast for stocks of shrimp and scallops, M.V. SILVER BAY cruise 26
- Anon. (1961a) 818
Fish. News, (2489):9-10
 Manx scallop fishery grows
 Presents a history of the Isle of Man scallop fishery, based on *Pecten maximus*, with particular reference to the development of closed seasons, changes in boats and gear, and fishing methods. The organisation of processing and marketing during 1961 is discussed as is the value of *Chlamys opercularis* to the fishery.
- Anon. (1961b) 819
Commer. Fish. Rev., 23(4):31-3
 Survey of fish and shellfish resources off Georgia and Florida, M/V SILVER BAY cruise 28
 Modified Georges Bank-type scallop dredges (8 and 10 foot) were used in a 26 day exploratory fishing cruise between Fort Pierce, Florida and Brunswick, Ga. The depths of water fished and the catch rates of the dredges at each station are reported.
- Anon. (1962) 820
Mon. Serv. Bull. West. Aust. Fish. Dep.,
 11(7):153
 The scallop fishery of Tasmania

- Anon. (1962a) 821
Commer. Fish. Rev., 24(8):38-9
 Calico scallop explorations off North Carolina
 Presents a report of a cruise undertaken to determine the availability of scallops (*Pecten gibbus* and *P. grandis*), north of Cape Lookout, and to assess the animal life present off the North Carolina coast between 50 and 100 fathoms.
- Anon. (1963) 822
Fr. Pêche, (72):39-40
 Fiche technique. Le pétoncle et le vanneau (Technical sheets: scallops and queens)
 Detachable cards providing information on the biology, natural habitat, and commercial fisheries for *Chlamys varia* (and *Pecten maximus*).
- Anon. (1964) 823
Commer. Fish. Rev., 26(1):29-31
 South Atlantic exploratory fishery programme - preliminary fishery explorations off Hispaniola and scallop survey off Florida
 Reports on a survey carried out to determine the scallop potential, (*Argopecten gibbus*), on the east coast of Florida, between 15-50 fathoms. Catch rates of young and commercial size scallops are recorded and the meat yields determined. Areas providing the better catch rates are reported.
- Anon. (1964a) 824
Commer. Fish. Rev., 26(2):47
 South Atlantic exploratory fishery programme - scallop distribution survey off Florida
 Reports on a 14 day cruise to assess the seasonal distribution and availability of calico scallops (*Pecten gibbus*) off the east coast of Florida. Catch rate and meat yield information is provided and the distribution of young scallops is recorded.
- Anon. (1964b) 825
Fish. News, (2669):8
 W.F.A. surveys on escallops in Scotland
 Provides the results of two White Fish Authority surveys determining the distribution of commercially exploitable scallop (*Pecten maximus*) stocks off the Scottish coast. The gear used and the catch rates obtained are reported and descriptions of bottom types are included. Gonad condition of captured scallops is determined.
- Anon. 1964c) 826
Aust. Fish. News, 23(8):19-21
 Encouraging scallop markets
 Presents an assessment of possible foreign markets for the scallop *Pecten meridionalis* due to an increase in production. A table of estimated scallop exports from Australia to various countries from 1960-1961 and 1963-1964 is included.
- Anon. (1964d) 827
Aust. Fish. News, 23(8):5
 Scallop catch is rising
 Presents a history and a recent review (covering the year 1964) of the Tasmanian scallop fishery, based on *Pecten meridionalis*. Landing statistics, catch rates, meat yields and export statistics are presented. Information on the fishing areas, the scallop fishing season and the number of boats employed in the fishery is also included.
- Anon. (U.S. Department of Commerce) (1964e) 828
 Washington, D.C., U.S. Department of Commerce. 195 p.
 A technical study of the scallop and flounder industry of New Bedford, Massachusetts Area Redevelopment Administration
- Anon. (White Fish Authority) (1965) 829
Res. Dev. Bull., (13):2 p.
 Escallop survey - Northumberland coast. May/June 1965
 Reports on a survey of escallop (*Pecten maximus*) beds off the Northumberland coast between Holy Island and Blyth, over a wide area of coastal waters out to the 40 fathom line. Areas containing commercial densities are recorded, and meat yields are determined. Catch rate comparisons are made between the Manx dredge and the Baird sledge dredge.

- Anon. (1965a) 830
World Fish., 14(9):81-2
 Scotland frozen scallops
 Presents a review of the development and future prospects of the scallop fishery of the N.W. coast of Scotland based on *Pecten maximus* and the effects of Australian scallop imports and overfishing of the beds on the fishery.
- Anon. (1965b) 831
Commer. Fish., Auckland., 3(10):36
 New Zealand scallops - jet propelled delicacy
 Describes the development of the New Zealand scallop fishery, based on the commercial scallop beds at Nelson, S. Island and Kaipara Harbour. The future development of processing facilities is discussed.
- Anon. (1966) 832
Fish. News., (2795):11
 Scheme to exploit Cornish coast scallop beds
 Describes the effect of the new six-mile fishing limit on the Cornish scallop fishery. Expected revenue from the fishery is reported.
- Anon. (1967) 833
Tasman. Fish. Res., 1(1):7-9
 Scallop research in d'Entrecasteaux Channel
 Provides the results of a survey carried out to determine extent of scallop (*Mimachlamys asperrimus*) stocks present in d'Entrecasteaux Channel, Tasmania. An analysis of the state of the scallop stocks is also presented.
- Anon. (1967a)* 834
Pêche Can./Fish. Can., May:1-4, 23
 Pêche de grande valeur sur la côte est. Le grand pétoncle (Important fishery on the eastern coast: the sea scallop)
- Anon. (1967b)* 835
Pêche Can./Fish. Can., 19(7):17-20.
 The sea scallop
 Provides morphological descriptions of *Placopecten magellanicus* and *Chlamys islandica* and information on their distributions, bottom associations, food, reproduction, growth and enemies. Fishing and processing methods employed in the Canadian fishery are described and the commercial importance of the two species on the east coast of Canada is discussed.
- Anon. (1967c) 836
Austr. Fish. News., 26(6):19, 25
 Evolution of Victorian scallop gear
 Describes and illustrates the development of Victorian scallop gear, based on the "sputnik" dredge, from its initial use in the Port Phillip Bay fishery during 1963.
- Anon. (1967d) 837
Aust. Fish. News., 26(9):5
 Trial doughboy scallop season
 Reports dredging restrictions imposed in the d'Entrecasteaux channel doughboy scallop, *Mimachlamys asperrimus*, fishery, August 10, 1967 for a trial period of one month. Tagging operations to determine the population size of scallops in the channel are also described.
- Anon. (1967e) 838
Commer. Fish. Rev., 29(11):22-4
 OREGON dredges scallop off Florida
 Reports on a cruise undertaken to assess potentially commercial calico scallop (*Pecten gibbus*) grounds, off the coast of Florida. Gear employed in the survey and meat yields and catch rates obtained are reported. A map showing areas having commercial concentrations of scallop is included.
- Anon. (1967f) 839
Ocean Hist., 2(12)
 Billion-dollar scallop find
- Anon. (1968) 840
Fish. Boat., 13(5):24-6
 U.S. scallop fishery - switching coasts
 Reports on the conversion of an Alaskan king crab fishing boat, to a scallop dredger, to fish for the Alaskan scallop *Patinopecten caurinus*. Initial catches are recorded, and the quality of the scallops, as compared with species caught off the

east coast of the United States, is determined. The importance of the development of the scallop fishery to Alaskan fishermen is discussed.

Anon. (1968a) 841
Quick Frozen Foods, 30(7):133-4
 Florida's calico scallop beds untapped source for freezing

Reports on meat yields obtained from calico scallops (*Pecten gibbus*) caught off the east coast of Florida. Typical scallop densities on the beds is also reported. The results of investigations into the effects of vigorous processing methods and freezer storage on the quality of scallop meats are presented. Meat tenderness comparisons are made between the calico scallop, the sea scallop (*Placopecten magellanicus*) and the bay scallop (*Aequipecten irradians*).

Anon. (1968b) 842
Aust. Fish. News, 27(9):54-7
 Southern scallops

A history of the Southern Australian scallop fishery (Victoria and Tasmania) is presented, landings and their values being included. Information on feeding, spawning, distribution, and the commercial fishing areas for the commercial scallops *Pecten alba* and *Pecten meridionalis*, the queen scallop *Equichlamys bifrons* and *Mimachlamys asperimus* is provided.

Anon. (1968c) 843
Commer. Fish. Rev., 30(12):39-40
 OREGON checks Florida's scallop grounds

Reports on the ninth cruise carried out to check on the Cape Kennedy calico scallop (*Pecten gibbus*) grounds and to determine the best areas for commercial exploitation. Commercial and under-size scallop catches for standard transects, made in 10-40 fathoms, are described.

Anon. (1969) 845
Natl. Fisherman, 50(1):1-8
 Shuckers for Florida calico beds - new scallopers detailed

Provides a description of a new automatic scallop shucking machine installed aboard two new 86 foot vessels, built specifically for the Florida east coast calico scallop (*Argopecten gibbus*) fishery. The expected

processing capacity of the machine is reported. Plan drawings of the new vessels are also included.

Anon. (1969a) 846
Aust. Fish., 28(9):15
 Survey of Port Phillip scallop beds

Reports on a survey undertaken by the Victorian Fisheries Wildlife Department, of the Port Phillip Bay scallop beds in April 1969. Observations are made on the efficiency of dredges used, and the effect of the present number of boats in the fishery on future catch rates is discussed. Population estimates of 'legal size' and 'undersize' scallops are included.

Anon. (1969b) 847
Fish. Ind. News Serv., 2(4):4-10
 Scallop net tests - Shark Bay

Provides an interim report on the size selectivity of scallop nets investigated in Shark Bay between 8-11 September 1969. The types of nets and experimental methods used are described and results provided are discussed. Regulations regarding the minimum mesh sizes for scallop nets and dredges in Shark Bay are provided. U.S. scallop consumption and import figures for 1968 are also included.

Anon. (1970) 848
Fish. News Int., 9(5):97
 Machine opens scallop shells

Presents a summary of a report, presented by R.W. Nelson at the Montreal Conference on Automation and Mechanisation in the Fishing Industry, describing a mechanical device for shucking scallops aboard ship. The shucking rate is given.

Anon. (1970a) 849
Commer. Fish. Rev., 32(6):8-9
 BOWERS explores for scallop off Florida's east coast

Reports the results of transects run with RUFAS (Remote Underwater Fisheries Assessment System), over scallop (*Argopecten gibbus*) beds off the east coast of Florida, to discover areas having the heaviest scallop concentrations. Scallop habits were also observed. Information on technical detail and filming technique is also included.

- Anon. (1970b) 850
Aust. Fish., 29(9):7
 Victoria moves to protect new scallop beds
- Anon. (1970c) 851
Scott. Fish. Bull., (33):18-21
 Experimental dives in Pisces
 Reports on observations carried out by a submersible vehicle in Loch Fyne in the Firth of Clyde. Plankton observations and those concerning the operation of scallop dredges and a beam trawl were made. The behaviour of scallops (*Pecten maximus*) and queens (*Chlamys opercularis*) in the path of the dredges and trawl were also observed and recorded.
- Anon. (1970d) 852
Commer. Fish. Rev., 32(11):5-7
 Vast calico scallop beds encourage new fishery
 Reports the location of extensive stocks of calico scallops (*Argopecten gibbus*) off N. Carolina, the east coast of Florida, the eastern Gulf of Mexico and N. Florida coasts. A description of the present fishery and work being done on age, growth and location changes (with the aid of RUFAS) is included.
- Anon. (1970e) 853
Commer. Fish. Rev., 32(11):8
 Counting scallops in 150 feet of water
 Describes the mechanics and working of RUFAS (Remote Underwater Fishery Assessment System), used to survey extensive scallop beds off the North Florida coasts. Predictions for the 1975 catch of calico scallops (*Argopecten gibbus*) from these beds are presented.
- Anon. (1971) 854
Fish. News Int., 10(12):18-20
 Calico scallop fishing in southern U.S.A.
 Informs on the biology, distribution and abundance of calico scallops (*Argopecten gibbus*) around southern U.S. Processing methods are described. A review of the east Florida fishery is also presented.
- Anon. (FAO) (1972) 855
FAO Aquacult. Bull., 5(1):4-5
 Utilization of sewage effluent for shellfish culture
 Reports on phytoplankton production yields obtained using treated sewage. The phytoplankton being ultimately fed to commercially important bivalves (including *Aequipecten irradians*). The results of laboratory studies investigating the effects of the culture system used on the molluscs reared, are also presented.
- Anon. (1972a) 856
Aust. Fish., 31(7):7
 Scallop fishing resumed in Tasmania
 Reports on the resumption of the Tasmanian scallop fishery centred on the east coast and around Furneaux Islands. A discussion on the use of Baird dredges, banned in some areas, by some fishermen is included.
- Anon. (1973) 857
Commer. Fish., Lond., 5(1):54
 Japanese scallop processing unit
 Describes the operation of a Japanese shellfish processing unit being introduced to process a range of bivalve shellfish, including scallops and queen scallops.
- Anon. (1973a) 858
FAO Aquacult. Bull., 6(1):8
 Controlled reproduction and rearing of *Pecten maximus*
 Reports on the procedures involved for successful spawning and rearing of *Pecten maximus* in the laboratory, carried out at Brest, France.
- Anon. (1973b) 859
Commer. Fish., Auckland., 12(3):10-1
 Conservation measures promote growth of shell fisheries
 Presents a historical and recent review of the Tasman and Golden Bay scallop (*Pecten novaezelandiae novaezelandiae*) fisheries, which includes landing statistics and information on the state of the stocks. The effects of conservation measures on the stocks is

discussed, and the results of a preliminary diving survey in Fiordland is reported. The major predators of scallops are listed.

Anon. (1973c) 860
Commer. Fish., Lond., 4(4):52
 Queen scallop crisis
 Reports on the effect of U.S. dollar devaluation on the U.K. queen scallop fishery.

Anon. (1973d) 861
Commer. Fish., Lond., 4(5):2-5
 Rebirth of the Solway
 Provides a descriptive account of the growth of the queen scallop (*Chlamys opercularis*) fishery and processing industry in the Solway Firth, Scotland. The sizes of boats and fishing fleets, and landing values recorded are included.

Anon. (1973e) 862
Fish. News, (3129):1
 Queen catches soar
 Reports the values of increased queen scallop (*Chlamys opercularis*) landings between February and April 1973, compared with those for 1972, for the port of Torbay, so prompting a proposal for a quay extension and processing plant.

Anon. (1973f) 863
Fish. News, (3130):2
 Quay plan to cope with queens
 Reports on a proposal put forward at a Torbay County Borough Council meeting for a quay extension to Brixham Fish Quay to accommodate the loading of queens (*Chlamys opercularis*) and other bulk fish onto lorries. A review of this queen fishery, which provides landings and value statistics, is also presented.

Anon. (1973g) 864
Fish. News, (3133):3
 Big scallops in rich new find
 Reports the location of scallops (*Pecten maximus*), off the east coast of Ireland, and their development potential.

Anon. (1973h) 865
Ir. Skipper, (114):7
 Research locates new scallop stocks
 Reports the location of scallops (*Pecten maximus*), off the east coast of Ireland, and on their development potential. Information on catches rates, meat yields, and scallop size is included.

Anon. (1973i) 866
Mar. Fish. Rev., 35(7):42
 Freeze on Canadian scallop fishing
 Records new measures introduced to restrict the fishery for scallops (*Placopecten magellanicus*), off the east coast of Canada, and the reasons for these restrictions.

Anon. (1973j) 867
Natl. Fisherman, 54(7):25-A
 VIMS tags scallops, seeks migration patterns
 Reports on a tagging programme, carried out in Bradford Bay, Va., to determine the migration patterns of the bay scallop (*Aequipecten irradians*). Suggestions as to the bay scallop's decline in the area are provided and details of a hatchery programme being carried out are also reported.

Anon. (1973k, 1974) 868
Mar. Fish. Rev., 35(7), (9), (10), (11), 36(1), (2):v.p.
 Monthly fishery market review - scallops
 Reviews the United States and Canadian scallop supply position providing production, import, and U.S. consumption figures and also includes ex-vessel, wholesale and retail prices.

Anon. (1973l) 869
Fish. Gaz., 90(12):29, 54
 Scallop scoop
 Provides a statistical review of world scallop production and trade.

- Anon. (1974) 870
Food Fish Facts NMFS Natl. Consum. Educ. Serv. Off., (21):2 p.
 Scallop meat and shell
- Brief descriptions of the following scallops, and areas where they are fished, are provided: New England sea scallop, *Placopecten magellanicus*; Bay scallop, *Aequipecten irradians*; Calico scallop, *Argopecten gibbus*; and Alaska scallop, *Patinopecten caurinus*. Information on habitat, fishing boats and gear used in the fisheries, conservation and management, and the uses of the scallops is also included.
- Anon. (1974 a) 871
Fish. News, (3158):5
 Brixham queen quay cash is refused
- Reports on a U.K. government decision relating to the provision of a grant for a proposed quay extension to improve the landing area for the queen scallop (*Chlamys opercularis*) fishery. Reasons for the decision and its implications are discussed.
- Anon. (1974 b) 872
Fish. Ind. Rev., 4(2):12
 Recent White Fish Authority technical progress: scallops
- Reports the results of trials carried out in Loch Sunart, for the collection of scallop (*Pecten maximus*) and queen (*Chlamys opercularis*) spat. The relationship between depth and spat density is discussed.
- Anon. (1974 c) 873
Aust. Fish., 33(8):20
 Scallop trawling expands in northern Queensland
- Describes the development of the N. Queensland scallop fishery, based on *Amusium balloti*, and reviews the present situation. This includes information on the number of boats employed in the fishery, the gear used, the average catch rates, and processing and marketing.
- Anon. (1974 d) 874
Aust. Fish., 33(8):21
 Illwara Range - a family enterprise
- Describes newly built combination trawler being used in the N. Queensland scallop fishery, based on *Amusium balloti*.
- Anon. (1974 e) 875
Aust. Fish., 33(9):14
 New English scallop dredge based on Australian design
- Reports on the operation of a new scallop dredge and handling rig developed by the White Fish Authority (U.K.) based on Australian designs. Advantages of the dredge over conventional designs is discussed.
- Anon. (1974 f) 876
Sci. Pêche, (240) and (241):41-4
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- Results of catch rates obtained for *Chlamys islandica* and *Placopecten magellanicus* during dredging trials by the M.V. CRYOS, on the 25th November 1974, on St. Peters Bank. Presents also the results of preliminary experiments carried out to compare the effectiveness of different scallop spat collectors, based on a Japanese model, used in spat trials for *Pecten pectinatus*. A comparison of the percentages of spat caught on the collectors which were set at different depths, of *P. maximus*, *C. opercularis* and *C. varia* is reported for two areas on the Brittany coast (Belle Isle and Quiberon Bay).
- Anon. (1974 g) 877
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- An annual statistical appraisal of world scallop production.
- Anon. (1975) 878
Aust. Fish., 34(10):10-2
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- Anon. (1976) 879
Commer. Fish., Auckl., 15(1):6-7
 New type of scallop dredge
- Describes a new type of scallop dredge which is less destructive to scallop beds than conventional dredges.

- Anon. (1976a) 880
Fish. News, (3286):1-2
Scallop boom off south coast
Provides information on a revived scallop fishery that has developed in the English Channel. Details of monthly landings and values, and the dredging methods used in the fishery are given.
- Anon. (1976b) 881
Aust. Fish., 35(3):15
Tasmanian work suggests wild spat collection needed
Reports on the methods used and the results obtained from wild collection experiments of the spat of the commercial scallop (*Pecten meridionalis*) and the queen scallop (*Equichlamys bifrons*) in Spring Bay, Tasmania.
- Anon. (1976c) 882
Ir. Skipper, (151):4, 6
Irish scallop workshop attracts many experts - survey of Irish scallop fisheries
Provides a brief report of a scallop workshop held in Ireland, and an article compounded of brief extracts from a detailed assessment of the scallop fisheries of Ireland.
- Anon. (1976d) 883
Fish. News, (3289):15
Small boats start mini scallop rush
- Anon. (1976e) 884
Aust. Fish., 36(6):33
Scallop study begun in Queensland
Provides reasons for proposed population growth, and catch and effort studies of the saucer scallop *Amusium balloti*, At Deception Bay near Brisbane.
- Anon. (1976f) 885
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Conservation plans needed to safeguard scallop beds

ADDENDUM I

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<i>magellanicus</i> | 886 | Bailey, K. and
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of <i>Chlamys opercularis</i>
Discusses electrophoretograms prepared
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muscle of queen scallops (<i>Chlamys</i>
<i>opercularis</i>). Hardy-Weinberg predictions | 896 |

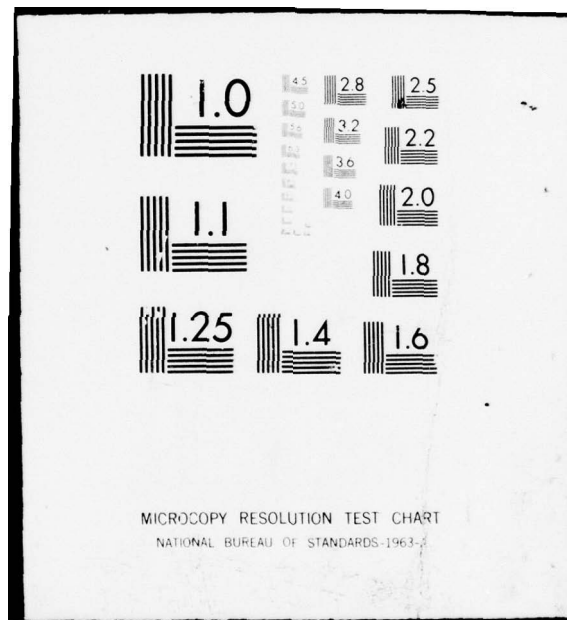
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATION--ETC F/G 6/3
A PARTIALLY ANNOTATED BIBLIOGRAPHY OF COMMERCIALY EXPLOITED SC--ETC(U)
DEC 78 E KOPINSKI
FAO-FIDI/C716 NL

NL

AD
AO 64757

Year	1970
Age	40
Sex	Male
Height (cm)	170

4-79
RDC



for genetic control by three codominant alleles are related to frequencies in Anglesey and Isle of Man populations. Comparisons are made with *C. distorta*, *C. varia* and *Pecten maximus* systems, and a possible means of examining the extent of genetic differences between populations of *C. opercularis* over its range, are discussed.

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Associated flora	195	202	344	424	425	504	(511)
	(512)	(521)	659	660	695	835	867
Avoidance behaviour	27	28	87	205	210	378	580
	697	793	851				
Behaviour	27	28	87	144	372	580	625
	784	851	886	972			
Biodeposition	488						
Biochemistry/Biochemical analysis	3	13	17	48	59	69	71
	72	112	to	115	131	134	164
	166	167	168	199	216	225	226
	255	265	(266)	270	271	272	281
	295	to	301	311	to	321	347
	359	361	366	367	379	389	392
	393	(394)	395	398	428	439	452
	to	455	481	482	484	485	488
	501	505	509	518	519	520	522
	530	532	541	548	552	564	568
	586	596	597	599	630	641	643
	649	663	664	674	676	677	682
	683	684	687	700	704	705	707
	725	760	765	797	889	891	892
	893	907	923	925	926	928	930
	933	934	936	943	947	948	950
	to	953	955	956	957	959	960
	961	988	990	997	1004	1005	1013
	1017	1018	1019	1020	1022	1028	1036
	1039	1044	1046	1051			

Biochemical degradation	17 298	112 300	to 674	115	255	296	297
Biology	7 58 267 411 600 800 1050	18 157 283 461 601 806	19 193 287 545 667 822	(20) 201 (288) 546 681 854	(24) 217 333 549 735 904	38 253 350 563 789 982	(51) 254 (382) 570 796 1021
Biomass estimate	336						
Boats and gear	47 197 450 818 965	58 265 516 827 1001	85 (266) 559 861 1040	101 349 567 870	139 411 610 873	141 413 737 874	177 419 805 932
Boring organisms	135	480	536	539			
Bottom types	145 555 882	231 604 965	249 660 1021	259 661 1060	336 735 1061	499 737	523 825
Breeding/Breeding seasons	7 70 138 436 619 745 773 949	10 82 145 563 to 750 774	12 110 354 577 624 754 776	18 111 355 578 647 766 777	32 129 377 609 648 to 778	39 130 387 (615) 686 770 858	47 133 425 617 721 772 927
Byssus/Byssus attachment	8	93	217	422	680		
Camouflage	728						
Capital outlay/Costs	374	499	610	611			
Cardiac activity	717						
Catch/Effort	65 634	274 890	429 1006	438	446	447	606
Catch disposal	139	141	1001				
Catch rates	81 606 816 838 876	176 660 819 840 932	197 689 823 843 1049	246 (701) 824 846	499 757 825 850	593 814 827 865	(604) 815 829 873
Catch statistics	53 349 549 692 1057	65 369 551 693	97 388 607 720	189 414 608 804	223 415 634 869	246 416 651 980	325 (516) 652 1021

Cell division	41	384	943				
Chemical composition	13	49	71	72	131	134	167
	216	225	255	265	(266)	270	271
	272	281	316	320	361	367	439
	474	484	522	548	586	643	682
	707	929	930	934	959	960	961
	1005	1044	1046				
Chromosomes	41						
Cilia/Ciliary movement	77	343	663	(722)	723	727	936
Circulatory system	77	194					
Classification	44	126	127	143	149	152	219
	250	267	291	577	655	727	764
	902	1007					
Climatic effects	535						
Commensal relationships	4	117	202	302	362	363	364
	475	476	547	625	758	792	886
Comparative studies	(122)	123	127	144	158	159	160
	161	162	181	185	188	198	199
	200	202	204	216	237	239	256
	263	270	271	(284)	285	286	287
	289	294	296	297	299	304	307
	312	316	329	334	335	336	342
	360	362	379	393	394	398	402
	to	405	418	427	428	434	441
	446	452	464	465	467	477	480
	482	486	487	493	494	(495)	499
	509	523	528	538	547	554	555
	560	568	576	577	578	581	584
	585	593	599	(600)	601	602	(615)
	616	620	622	629	630	643	649
	659	664	682	684	687	723	724
	736	740	741	742	775	779	782
	783	784	792	794	815	829	840
	841	876	887	889	896	898	907
	916	923	925	943	964	978	1003
	1017	1020	1022	1028	1036	1043	1045
	1051	1054					
Condition/Condition factor	82	136	146	209	431	450	
Conservation	22	101	125	228	256	265	(266)
	279	344	513	859	866	870	885
	942						
Consumption	720	847	868	869			

Culture	16	109	110	111	116	137	229
	230	235	261	262	279	322	324
	333	340	353	(354)	355	386	396
	409	430	498	540	543	545	(546)
	598	609	618	638	639	743	767
	768	769	772	776	781	782	795
	855	858	894	902	908	916	917
	949	954	968	991	996	1002	1003
	1008	1029	1031	1032	1041	1042	1043
	1053						
Current effects	523	525					
Density studies	110	(124)	198	262	795		
Depth range/Depth studies	110	198	249	259	304	534	551
	588	626	648	660	815	816	872
	912	939	944	993	1031	1045	1055
	1061						
Development	109	145	229	287	365	430	529
	618	786	790	(791)	902	916	972
	972						
Digestive system	149	164	281	624	676	677	678
	957						
Diseases/Disease control	351	458	646	711	712	715	908
	954	996					
Distribution	1	2	7	to	11	25	45
	57	59	60	61	63	64	70
	76	81	84	85	89	90	98
	99	103	(107)	(118)	(124)	127	(128)
	132	139	141	148	149	152	153
	177	189	191	196	197	206	219
	224	228	231	232	233	242	243
	249	251	254	256	265	266	267
	280	303	304	306	327	331	333
	335	338	(341)	343	362	364	368
	382	399	(408)	423	425	435	438
	450	468	476	478	483	491	(510)
	511	(512)	514	516	523	(524)	525
	(527)	533	to	536	545	546	547
	551	553	(556)	(557)	565	566	567
	(575)	577	579	588	590	591	593
	(594)	(605)	607	614	626	627	632
	633	642	652	654	657	660	661
	665	(667)	675	691	707	713	(714)
	721	737	738	744	752	755	756
	757	(763)	799	804	805	807	809
	812	816	823	824	825	835	842
	852	854	902	906	912	(913)	(914)
	918	(919)	(921)	935	(938)	(941)	944
	982	993	1021	1023	1049	1055	1061
Diurnal rhythms	939						

Diving	30 660	73 859	87	499	523	544	628
DNA synthesis	384	943					
Dredge efficiency	26 174 847	29 258 942	56 441	57 593	86 628	87 829	91 846
Dredge operation/Methods	106 882	252 1040	374 1058	812	851	875	880
Dredge selectivity	30 239	53	56	91	94	237	(238)
Dredging effects	258 879	444 942	459 970	582	628	695	856
Earnings	228	932					
Ecology	243 432 616 775 911 1035	(356) 488 679 776 939	357 521 680 778 980	358 530 733 781 982	367 535 738 792 1021	425 576 770 886 1023	431 (615) 772 902 1033
Economic importance	149						
Economics	42 (266) 611	137 324 720	185 374 860	186 545 981	233 (546) 996	235 569	265 610
Electrical stimulation	403	405					
Embryos	193	567	916				
Employment statistics	105 878	139	141	265	(266)	325	720
Enemies	47 251 425 580 746 859	73 309 480 603 to 908	95 344 496 646 649 944	135 348 525 652 756 966	179 378 536 697 799 996	207 383 539 715 805	210 411 554 737 835
Energy budget	227						
Environmental effects	93 180 243 358 434 530 619 648 671	145 188 249 366 499 553 620 651 679	161 to 259 375 503 555 621 656 680	163 191 262 403 520 576 623 659 681	174 199 322 405 523 604 624 660 706	175 207 336 418 525 615 630 661 716	179 234 356 427 529 617 647 670 727

Environmental effects (cont'd)	735	737	770	774	776	778	780
	781	784	785	792	801	825	882
	899	900	922	931	965	978	991
	1014	1015	1024	1033	1036	1037	
Environmental relationships	136	651	671	(1029)	1035	1038	1054
Enzymes	17	69	225	270	271	299	366
	379	455	485	501	505	519	541
	552	663	674	704	725	760	765
	925	955	956	957	1013	1018	1020
	1022						
Equipment/Equipment research	102	507	508	807			
Escape reaction	27	28	87	205	210	378	487
	580	697	793				
Evolution	76	127	733	793			
Exploration/Exploratory fishing (see also Fishery survey and Surveys)	25	30	45	57	60	61	63
	64	81	84	97	98	99	119
	120	121	(124)	146	148	177	196
	256	376	380	381	417	456	538
	544	751	817	819	821	823	903
	921	962	963	967	976		
Export statistics	826	827	832	878	1057		
Eye	79	86	150	151	169	244	277
	294	310	365	370	to	373	420
	421	481	482	502	537	587	636
	637	751	897				
Fats	71	72	316	320	684		
Fatty acids	71	641	923				
Feeding/Feeding behaviour	123	165	205	307	435	528	553
	630	799					
Fertilisation	261	262	780	790	977		
Filtration	5	123	241	356	418	528	722
	723						
Fisheries	7	10	(24)	38	42	43	45
	47	54	58	61	65	82	85
	92	96	100	101	(118)	125	132
	186	189	191	197	208	219	228
	232	233	237	238	240	246	257
	264	265	269	274	275	276	280
	306	325	326	349	367	369	(382)
	390	411	412	417	419	424	435
	440	442	443	445	to	451	483
	500	510	513	516	526	545	546
	549	562	566	567	585	591	595

Fisheries (cont'd)	605	to	608	610	611	644	652
	668	669	671	686	689	691	707
	714	737	738	744	803	804	808
	809	812	816	818	820	822	833
	856	860	861	871	873	878	880
	882	883	890	895	902	920	922
	924	932	937	942	964	980	982
	995	999	1001	1006	1035	1050	1056
	1062	1064	1065				
Fishery biology	53	92	96	738			
Fishery data	65	549					
Fishery development	81	82	100	(118)	146	184	186
	411	440	447	562	698	830	831
	840	971					
Fishery economics	65	186	233	251			
Fishery management	197	513	526	885	970		
Fishery production	146	185	964				
Fishery prospects	54	140	186	231	274	287	349
	411	425	443	450	562	566	588
	590	607	644	653	654	698	715
	757	830	853	864	865	922	937
	942	976	1006	1027	1061		
Fishery regulations	139	141	265	(266)	390	391	607
	608	611	628	737	808	827	832
	837	847	850	856	866	883	885
	902	932	970	980	989	1056	1058
	1059	1063					
Fishery resources	46	140	525	551	588	665	691
	703	937	942	1027			
Fishery surveys (see also Surveys)	57	61	99	184	185	390	463
	542	588	590	645	689	734	738
	825	895	919	921			
Fishing areas	7	25	45	61	70	81	85
	98	99	103	132	139	141	148
	177	(189)	197	206	224	228	(231)
	232	242	251	256	265	(266)	306
	446	447	450	(451)	(510)	525	545
	546	591	607	608	611	691	707
	714	737	804	809	813	816	823
	827	829	838	839	842	843	852
	856	870	878	882	883	902	1054
	1055	1060					
Fishing communities	937						
Fishing efficiency	186	189					
Fishing effort	97	101	103	139	141	246	275
	276	415	720	981			

Fishing gear/Technology	26	29	30	47	53	56	57
	58	62	85	106	139	141	147
	177	186	197	237	(238)	239	250
	252	265	(266)	349	411	419	450
	(516)	559	567	583	584	591	593
	595	604	628	629	635	653	734
	737	757	761	805	812	818	829
	836	840	846	847	856	870	873
	874	879	902	924	965	1001	1040
	1065						
Fishing methods/ Operations/Vessels	47	139	147	209	251	306	325
	374	376	388	390	411	413	435
	443	450	567	584	591	607	608
	610	651	652	701	720	808	812
	813	814	818	835	840	845	861
	870	874	882	971	1040		
Fishing mortality	(94)	95	258	462	890		
Fishing ports	139	141	737	862	863	871	
Fishing seasons	139	141	265	(266)	349	440	651
	737	818	827	837	885	932	970
	1064						
Flesh weight	134						
Food	205	307	322	352	426	621	623
	748	787	795	835	842	855	
Food composition/ Food value	265	(266)	313	439	548	643	652
Fouling organisms	799	1023					
Freezing/Freezing effects	113	199	255	296	298	300	385
	392	509	564	568	597	599	726
	736	742	841				
Gear	47	57	58	85	177	205	249
	252	253	265	(266)	306	325	336
	388	390	413	419	441	443	450
	559	567	583	584	591	595	604
	(701)	737	757	805	808	813	814
	815	818	825	838	840	846	847
	856	861	870	873	879	882	902
	924	965	1001	1040	1058		
Gear efficiency	26	29	56	57	87	91	174
	258	390	441	544	584	593	628
	629	734	829	846	847	924	942
	1065						
Gear research	53	57	62	416	446	459	544
	635	653	734	829	836	851	875
	879						

Gear selectivity	30 239	53 890	56	91	94	237	(238)
Genetics	896						
Gonad condition	73 732 1011	201 825	589 903	620 907	647 910	648 911	661 1010
Gonad development	12 716 1033	18 732	45 812	200 972	239 985	430 1010	621 1011
Gonads	315 (731) 1011	439 732 1021	501 757	577 797	578 946	624 951	716 959
Growth/Growth rate	7 110 211 239 339 387 577 686 757 887 987 1041	18 180 (212) 242 356 432 591 702 782 890 994 1042	30 182 (213) 243 357 433 657 721 795 904 1000 1043	37 189 (214) 245 358 434 666 734 809 943 1003 1045	42 191 227 284 362 471 670 735 812 968 1026 1055	47 198 237 285 363 543 672 745 835 972 1031 1061	67 209 (238) 289 384 561 673 750 852 973 1038
Habitat	10 332 822	47 496 870	76 576 982	152 582 1048	(157) 591	205 616	280 783
Habits	42 582	193 600	228 601	233 849	251 1048	329	333
Handling methods	40	147	272	419	591	652	
Heavy metals	74 969	75 975	115 1015	204 1016	706 1024	801	931
Hermaphroditism	12 410 1011	129 430 1021	130 477	158 577	290 (578)	387 909	402 1010
Hinge	154	334	345	386	616	929	930
Histology	77 678	78 910	365 911	503 1010	602 1011	612 1025	613
Histopathology	954						
Histophysiology	200	897	979				
History: Fisheries	54 (266) 818 1054	81 274 827	99 411 830	100 447 831	101 605 842	209 652 859	265 698 1049

Hydrography/hydrology	173	242	336	375	387	425	978
Hypertrophy (Lip)	44						
Identification	116	(118)	129	138	165	251	311
	319	327	368	397	467	517	533
	658	690	730	982			
Import statistics/ Importation effects	206	719	830	868	869	1062	
Induced ovulation	780						
Induced spawning	110	111	133	138	229	261	322
	355	539	609	770	774	776	777
	790	795	858	977			
Ionic regulation	945	1036					
Juveniles/Juvenile development	109	111	191	268	322	329	337
	427	467	470	618	658	673	711
	712	786	788	(789)	812	824	843
	904	972	978	1015	1016	1023	1045
Laboratory culture	109	116	(137)	145	235	386	(396)
	618	768	776	781	782	858	861
	862	863	916	949	972	1032	
Landing statistics	45	47	100	101	105	(172)	176
	189	190	205	223	228	(232)	246
	251	275	276	369	414	415	416
	429	440	450	(516)	549	567	607
	608	634	647	692	693	719	720
	737	827	842	859	880	882	890
	964	974	993	999	1006	1049	1056
	1059	1063	1064				
Larvae/Larval development	111	116	138	145	163	180	181
	191	229	242	261	262	322	337
	364	396	397	470	490	517	529
	579	609	658	695	711	712	762
	767	768	770	781	786	795	908
	916	939	944	954	956	972	977
	983	991	1002	1008	1032		
Larval identification	116	138	973				
Latitudinal effects	161						
Length-frequency distribution	30	211	(212)	(213)	(214)	249	259
	434	661	809	812			
Length/Location/ Depth relationship	551						

Length-weight relationships	181	282					
Life cycle	14 911	228 973	309 1055	325	425	786	902
Life history	21 251 588 983	42 254 652 991	57 265 671 1052	109 (266) 707	132 344 (784)	191 475 805	205 582 886
Life span	987						
Ligament	6 929	334 930	345	480	580	708	709
Light effects/Light response	79 (420)	182 421	244 502	277 621	371 623	372 751	(373)
Lips	241						
Lipids	281 951	641 952	677 960	683 961	798 1004	923	948
Locomotion	14 218 400 527 793	27 245 435 580 811	47 278 465 651 851	70 280 487 694 904	87 292 489 697 972	205 344 496 728 992	210 378 525 729
Lunar periodicity/ Lunar phases	12	360	(436)	437	648	686	778
Management	197 981	390 1029	526	610	611	870	885
Mantle	192	574	631	1047			
Market review	719	804	868	980			
Marketing	197 607 882	265 608 888	(266) 816 1057	390 818 1064	435 826	440 860	516 873
Marketing effects	300	878					
Marking (tagging)	305 699	387 837	444 867	523 987	561	590	592
Mass mortality	7	173	179	186	1009	1010	
Mathematical models	187	356	358	479	640		
Mean weight	103	134					
Measuring techniques	268						

Meat colouration	59	458					
Meat condition	146	239	440	591	645	696	726
	736	739	740	741	742	816	840
	841	1036					
Meat size	416						
Meat size-shell height relationship	286	287	972				
Meat size-weight relationship	82	92	102	103	256		
meat weight	757	1043					
Meat weight-whole weight relationship	287	439	551				
Meat yield	22	45	53	81	82	101	102
	287	411	457	539	591	593	657
	739	740	813	815	816	823	824
	827	829	838	841	850	865	890
	903	932	980				
Meat yield-age relationship	287						
Meat yield-size relationship	457						
Metabolic rate/metabolism	356	683	725	947	952	988	
Microbial contamination/Microbial control	262	711	(712)	954			
Migrations	23	651	734	867	987	992	1021
	1026						
Morphogenesis	386						
Morphology	1	2	9	47	70	76	116
	(118)	127	128	138	149	to	153
	(157)	159	to	162	(169)	181	(192)
	193	194	202	205	217	228	229
	234	244	245	251	254	263	267
	272	280	(288)	290	292	310	327
	328	331	332	337	338	(341)	(342)
	368	395	397	399	(433)	435	443
	467	470	477	478	479	491	495
	496	514	517	533	575	577	578
	580	581	585	587	614	(615)	616
	618	627	(631)	632	633	(642)	651
	652	658	675	676	677	690	(694)
	708	(718)	727	733	752	(753)	763
	804	805	835	870	902	906	(913)
	(914)	915	916	929	(938)	(941)	978
	979	982	983	1000	1021		

Mortality/Mortality rate	94 258 734 972 1043	95 260 782 973 1045	111 387 783 981	173 427 784 987	175 462 786 1008	186 506 890 1041	189 715 954 1042
Movement: population	400	561	992				
Movement: scallops	14 218 435 527 811	27 245 465 580 857	47 278 487 694 904	70 280 489 697 972	87 292 496 728 992	205 344 523 729	210 378 525 793
Muscle condition	201	316					
Muscle studies	168 321 453 509 599 682 889 950	281 346 454 522 602 687 891 955	295 347 455 564 612 704 892	296 389 464 568 613 705 901	297 395 492 580 649 718 926	300 400 493 596 664 730 933	316 439 494 597 674 757 940
Necrosis	711	712					
Nervous system	183 (393) 482 899	194 (394) 587	277 (395) (636)	310 404 (637)	365 464 663	372 465 (751)	(373) 481 (802)
Nomenclature	76 727	126 764	127 902	155 918	250 984	291 986	655 1007
Nutritive value	265	313	643				
Oocyte growth/ Degeneration	623	909	988				
Operative costs	374						
Overfishing	228	444	830	882	1059	1064	
Oxygen consumption/ uptake	356 975	418 1016	486	722	724	784	785
Oxygen isotope composition	994						
Paralytic shellfish poisoning	15	463	565				
Parasites/Parasitic infections	52 603 966	104 652 972	117 659	146 746	309 747	383 749	539 958

Particle retention	5	197	241	722	723	784	785
Pearl formation	135						
Periodic activity	600	601	1038				
Phylogenv	76	(126)	127	143	329	727	
Physiology	44	66	77	78	79	86	149
	150	151	(169)	192	194	200	(217)
	229	244	263	277	280	338	343
	346	365	370	to	373	400	420
	421	422	428	464	481	482	492
	493	502	537	(574)	576	581	622
	(636)	(637)	641	649	687	717	(718)
	752	759	901	945	1009	1033	1037
Phytoplankton/Planktonic effects	165	356	358	778	781	851	855
	1031	1054					
Pigments/Pigmentation	59	482	532	802	946	947	
Pollution/Pollution effects	216	234	375	530	630	656	661
	679	680	681	706	801	900	922
	931	969	975	1012	1015	1016	1024
	1030	1034					
Population assessment	523	846	890				
Population density	7	25	73	87	90	98	107
	110	139	141	148	198	231	259
	304	468	525	539	544	560	590
	593	635	654	660	689	713	795
	804	809	829	937	841	849	872
	902	922	1049	1060	1061		
Population fluctuation	7	54	88	89	125	170	172
	173	174	179	187	190	195	257
	304	325	424	526	547	549	588
	651	702	703	738	770	824	867
	922						
Population structure	92	93	125	242	438	444	534
	542	549	799	821	902	977	981
Population studies	96	99	107	125	127	177	195
	209	211	212	213	214	231	242
	257	269	275	276	285	304	387
	388	424	433	434	444	452	(524)
	550	561	(615)	620	622	628	695
	734	738	833	852	859	864	865
	884	896	911	942	971	978	987
Ports	139	141	737	862	863	871	

Predation/Predator control	47	73	95	179	207	210	251
	344	348	378	411	425	496	525
	554	580	646	697	737	748	756
	799	805	835	859	908	944	972
	996	1035	1049				
Preservation methods/ Preservation effects	113	199	255	296	298	300	308
	564						
Processing	40	47	83	146	147	265	(266)
	272	287	293	308	325	349	388
	450	463	466	483	497	507	508
	516	585	591	607	608	652	662
	689	707	719	739	to	742	761
	808	812	816	818	831	835	841
	845	848	854	857	861	873	878
	1042	1066					
Production costs	1045						
Production statistics	598	639	720	868	869	877	882
	1064						
Production trends	186	190	206	340			
Proteins/Protein synthesis	6	345	347	366	453	454	548
	586	596	664	704	705	797	898
	907	926	930	933	940	950	955
	959	985	1005	1051			
Radioactivity	630	641					
Range/Range extension	153	189	191	531	534	555	558
	626	650	675	912			
Recruitment	92	98	101	103	260	356	542
	734	890					
Reproduction	7	10	12	18	32	39	47
	70	82	110	111	129	130	133
	138	145	280	337	354	377	425
	430	436	503	563	567	577	578
	(615)	617	619	to	624	647	648
	686	716	745	750	754	766	768
	769	770	773	774	776	777	778
	791	795	799	835	858	899	902
	908	972	973	977	1033	1053	
Reproductive behaviour/ Reproductive cycles/ Reproductive organs	273	279	280	289	405	406	407
	430	437	503	686	985	1044	
Respiratory processes/ Respiratory rate	66	227					

Response to movement	27	87	144	751			
Review: aquaculture	638	639	743	894	908		
Review: experimental studies/Research	15	68	171	186	189	221	222
	275	276	312	414	415	416	429
	461	634	667	685	688	692	693
	735	833	1050	1056			
Review: fisheries/Fishery explorations	108	176	208	209	287	340	349
	388	417	443	450	461	566	634
	644	652	686	827	828	830	842
	852	859	863	922	942	1001	1006
	1027	1054					
Salinity effects/ Salinity tolerance	145	163	243	262	647	670	727
	780	785	991	1014	1015	1036	1037
Seasonal cycles	12	13	405	436	686	(731)	779
	890						
Seasonal variations	134	242	339	430	431	435	439
	450	463	543	678	683	702	731
	732	815	952	972	994	1009	1011
	1031						
Serological studies	226	538					
Settlement	554	734	735	762	768	872	973
	1026						
Sexual development	287	405	(406)	1011			
Sexual differentiation	12	129	130	158	289	290	387
	402	410	430	477	577	(578)	909
	1010	1021					
Sewage effluent-use of	855						
Shell/Shell sizes	103	159	160	181	342	386	432
	434	457	467	469	to	475	480
	491	515	580	586	616	660	661
	915	917	978	994	998	1000	1026
	1038	1043	1049				
Shell-flesh ratios	237						
Shell length-age relationship	702						
Shell length-total weight relationship	702						
Shell weight-age relationship	640	702					

Shock marks	98						
Silt effects	784	785					
Size distribution	45	50	81	82	209	239	249
	287	381	387	567	589	590	593
	645	(753)	754	799	813	903	973
Size/Size range	1	2	73	125	156	201	268
	285	292	338	435	439	457	515
	535	539	540	626	632	(633)	657
	660	661	(753)	754	757	805	815
	816	865	916	935	1021		
Size/Weight ratio	242						
Size-swimming activity relationship	992						
Spat/Spat collections	8	80	202	322	353	525	540
	544	609	657	734	735	768	770
	782	783	784	786	788	(799)	867
	872	876	881	904	905	944	956
	972	1029	1042	1045			
Spawning/Spawning seasons	7	10	12	37	82	110	111
	133	138	145	191	202	229	237
	(238)	242	261	322	338	339	355
	377	387	401	403	405	(406)	(407)
	425	(433)	435	436	437	529	563
	609	(615)	617	619	620	647	648
	686	745	750	757	766	768	769
	770	774	776	777	778	781	790
	791	795	809	812	842	858	908
	972	977	1021	1026			
Spectral sensitivity	144	(420)	421				
Steroids/Sterols	311	to	319	359	361	684	700
	730	928	934	951	1044		
Stock assessment/Condition	416	438	448	449	450	460	523
	549	550	551	589	590	689	720
	738	833	859	864	865	890	1050
	1064						
Stomach contents: fish	50	1035					
Stomach contents: starfish	554	748	1035				
Substrate/Substrate effects	145	231	249	259	336	499	523
	555	604	660	661	735	737	825
	882	965					

Surveys: exploratory/ Fishery	25	30	45	57	60	61	63
	64	81	84	97	98	99	119
	120	121	(124)	152	196	201	247
	248	249	256	287	390	417	456
	463	468	539	542	544	571	572
	573	588	589	590	593	594	604
	629	645	654	657	660	661	689
	703	734	735	756	757	796	800
	806	813	815	817	819	821	823
	824	825	829	833	838	839	843
	846	882	895	903	918	919	921
	942	962	963	967	976	1060	1061
Swimming action	27	47	70	87	93	205	218
	245	(278)	280	292	344	400	435
	465	487	496	694	728	729	793
	811	992					
Symbiosis	4	117	203	302	362	363	364
	471	472	473	475	(504)	547	625
	758	792	886	958			
Tagging - see Marking							
Taxonomy	76	82	126	127	143	149	152
	154	155	219	250	267	291	577
	655	727	764	902	984		
Temperature effects	93	145	161	174	175	179	188
	189	190	191	199	207	243	259
	262	322	356	358	366	403	(405)
	418	520	529	576	(615)	617	619
	620	621	624	647	648	670	716
	770	(774)	(776)	778	785	792	899
	994	1014	1015	1017	1020		
Toxicity	463	565	679	680	681	727	1016
	1024						
Trace metals concentration	75	216					
Transplantation effects	775	781	788	789			
Transportaiton	905	1042					
Trawl nets/Trawling	847	851	873	882	965		
Ultrastructure	492	493	494	709	(718)	897	936
	948	979	1025				
Underwater photography	106	146	174	416	544	560	635
	807	811	849	851	852	853	
Value statistics	105	205	223	228	251	325	340
	399	450	567	651	719	818	832
	842	850	861	862	863	868	869
	873	878	880	932	964	999	1057
	1064	1065					

Valve	348						
Vernacular names	219	567	982				
Vertical distribution	110 660	198 816	304 872	534 912	551 939	588	626
Vitamin content	301	316	484				
Waste disposal methods	272						
Waste utilization	49	325	399	707			
Water analysis/Water Circulation/Water currents	122 908	174	241	357	528	722	723
Water density effects	161						
Wholesale and retail trade/ Prices	47	265	(266)	888	1062		
Year class data	82	256	1006				
Yields/Yield fluctuations/ Yield predictions	22 1056	269	425	526	588	890	942

TAXONOMIC INDEX

The index has been arranged in accordance with that proposed by L.G. Hertlein in "Treatise on Invertebrate Paleontology", edited by R.C. Moore, 1969, Part 4 Vol. 1, pp. 348-71. Where there is no certain identification of the species referred to, the number of the entry has been placed in parenthesis. The compiler has used a number of criteria for including these references. These are:

1. From local common names given to particular species in the paper.
2. From references made to a species in a particular paper by another author.
3. The geographic location to which the paper refers.
4. That the particular species is included in other papers published by the same author.

Unidentified species are included at the end of the index according to the country in which they occur. To avoid confusion, the synonyms of the species included are listed separately in the index of synonyms.

AMUSIUM Rødding, Mus.Bolt., 2, 1798:165

<i>balloti</i> Bernardi 1861	141	245	306	607	(608)	644
	873	874	884	(914)	1001	
<i>pleuronectes</i>	44	607	608			
= <i>Ostrea</i> Linnaeus 1758						

CHLAMYS Rødding, Mus.Bolt., 2, 1798:165

C. (Chlamys)

<i>asperrimus</i>	139	140	(247)	(248)	249	291
= <i>Pecten</i> Lamarck 1819	(524)	607	644	833	837	842
= <i>Mimachlamys</i> Iredale 1929	914	915	(941)	1001		

<i>islandica</i>	1	2	11	41	73	107
	130	155	231	232	233	267
= <i>Ostrea</i> Müller 1776	291	329	334	366	416	(491)
= <i>Pecten</i>	(514)	550	551	614	632	644
	647	648	649	655	657	658
	691	723	728	753	to	757
	834	835	876	877	912	915
	919	945	991	992	1000	1021
	1027					

<i>noronhensis</i>	220	642	918			
= <i>Pecten</i> Smith 1885						

<i>tehuelchus</i>	220	909	910	911	918	
= <i>Pecten</i> d'Orbigny 1846						

<i>varia</i>	19	20	41	76	(77)	78
	79	130	135	157	158	162
= <i>Ostrea</i> Linnaeus 1758	217	219	228	292	304	307
= <i>Pecten</i> Pennant 1777	332	335	338	365	368	377
	401	to	404	(405)	406	to
	410	422	452	483	486	(514)
	533	545	546	570	577	578
	644	690	759	809	822	876
	896	915	956	982	1046	

C. (Aequipecten)

opercularis

= *Ostrea* Linnaeus 1758
= *Pecten* Müller 1776

6	8	9	10	12	14
18	36	41	(43)	(45)	69
70	74	75	76	(77)	78
79	85	129	130	132	(150)
158	161	162	197	201	202
205	225	228	229	251	267
272	280	291	292	301	303
304	307	(330)	332	335	to
338	360	365	368	369	377
380	381	399	402	(405)	408
409	418	428	441	(442)	443
446	447	452	487	(500)	501
(514)	517	533	540	542	to
546	570	577	579	to	581
587	591	614	631	632	644
655	679	680	690	708	(709)
721	722	723	728	734	735
752	759	(811)	818	(851)	860
861	862	(863)	871	872	876
890	896	902	903	915	923
924	966	982	986	987	999
1006	1026	1030	1036	1037	1045

C. (Argopecten)

gibbus

= *Ostrea* Linnaeus 1758
= *Pecten* Meuschen 1787

1	2	7	81	to	84
86	117	122	128	137	138
142	146	147	148	160	162
196	206	250	305	309	356
464	465	(466)	(491)	534	535
538	554	555	583	584	588
616	635	643	644	689	707
720	733	736	742	751	813
815	816	(817)	821	823	824
838	841	843	852	853	854
870	902	978	984	1002	1023
1028	1035	1048	1055		

irradians

= *Pecten* Lamarck 1819
= *Aequipecten*

1	2	42	(108)	109	110
111	116	117	(118)	123	126
127	(128)	129	130	131	136
153	159	162	165	182	195
198	204	206	233	234	235
244	266	268	270	271	277
304	310	325	326	343	344
346	347	358	364	393	to
396	(397)	420	(421)	424	425
(426)	427	464	481	482	488
489	490	(491)	527	529	536
538	547	570	576	612	613
617	619	to	624	630	638
643	644	651	659	663	664
682	687	695	(696)	711	(712)
715	716	724	(727)	728	733
(739)	(740)	(741)	742	746	to

<i>irradians</i> (cont'd)	749	759	792	805	(828)	841
	855	(867)	870	(892)	893	894
	897	898	899	900	902	908
	917	922	929	(930)	932	933
	936	948	954	975	980	988
	989	996	1002	1008	1015	1016
	1025	1028	1033	1039	1041	1043
	1050	1052	1054			1050
<i>irradians amplicostatus</i>	108	127	534	535	733	902
= <i>Pecten gibbus amplicostatus</i>						
Dall 1898						
= <i>Aequipecten</i>						
<i>irradians concentricus</i>	1	2	104	108	127	203
= <i>Pecten concentricus</i> Say 1822	233	356	357	362	363	386
= <i>Aequipecten</i>	534	615	616	618	624	733
	759	902				
<i>irradians irradians</i>	127	733	902			
= <i>Pecten</i> Lamarck 1819						
= <i>Aequipecten</i>						
<i>purpuratus</i>	644	906	913	920	976	
= <i>Pecten</i> Lamarck 1819						
<i>C. (Equichlamys)</i>						
<i>bifrons</i>	139	(247)	(248)	249	291	411
	(524)	607	(608)	644	842	881
= <i>Pecten</i> Lamarck 1819	(914)	915	916	(941)	983	
<i>C. (Flexopecten)</i>						
<i>glaber</i>	219					
= <i>Ostrea</i> Linnaeus 1758						
<i>ponticus</i>	935	997				
= <i>Pecten</i>						
<i>C. (Placopecten)</i>						
<i>magellanicus</i>	1	2	4	5	11	21
	to	24	36	(40)	41	(46)
= <i>Ostrea</i> Gmelin 1791	55	(59)	(60)	61	(63)	(64)
= <i>Pecten</i> Lamarck 1819	(67)	(68)	71	72	87	to
	90	92	to	103	105	107
	112	(113)	114	115	117	(119)
	to	(121)	(125)	130	131	145
	153	170	to	180	184	to
	191	(199)	206	207	217	226
	231	233	235	(240)	245	246
	(275)	276	282	295	to	300

<i>magellanicus</i> (cont'd)	(308)	311	312	(313)	314	to
	317	(318)	319	329	349	374
	375	(376)	385	388	414	415
	416	419	429	454	(457)	to
	(462)	467	to	475	(476)	477
	to	480	492	493	494	503
	504	(506)	515	(516)	518	519
	520	530	531	532	538	549
	558	(559)	560	to	565	568
	570	585	(594)	(595)	597	628
	634	641	643	644	652	654
	656	657	658	673	682	684
	687	691	(692)	693	(701)	720
	726	730	(744)	745	750	758
	759	801	804	(807)	(808)	834
	835	841	(866)	870	876	886
	898	908	921	928	929	(930)
	931	937	(942)	944	947	949
	957	965	967	974	989	993
	1002	1024	1027	1034	1044	(1056)
<i>as grandis</i>	312	463	491	515	556	(557)
	566	665	to	672	700	707
	724	(796)	800	831		
<i>as tenuicostatus</i>	193	194	232	233	325	329
	343	344	495	794	805	

PECTEN O.F. Müller, Z.Dan.Prod., 1776

<i>P. (Pecten)</i>	32	33	151	156	210	345
	743	793	891	895		
<i>alba</i>	139	209	306	412	553	603
	(604)	(605)	606	607	(608)	(609)
	(610)	611	644	842	(846)	850
	(914)	(938)				
<i>alba meridionalis</i> (authority of subspecies not traced)	390					
<i>jacobaeus</i>	35	48	76	(77)	78	79
= <i>Ostrea</i> Linnaeus 1758	130	219	291	292	294	(330)
	365	368	378	398	399	428
	486	(502)	(514)	517	533	537
	545	546	(574)	600	(601)	(602)
	(636)	(637)	(718)	752	759	802
	982	990	1013			
<i>laqueatus</i>	333					

maximus

= *Ostrea* Linnaeus 1758

6	8	9	10	14	(20)
25	27	28	30	31	34
36	41	44	47	65	66
75	(77)	78	80	117	129
130	132	133	134	144	149
(150)	158	163	164	168	169
183	192	202	205	211	(212)
213	(214)	218	224	228	236
to	239	241	251	253	254
256	to	264	267	269	272
278	280	(288)	291	to	294
297	303	304	332	335	336
338	360	367	370	(371)	372
373	378	380	381	(382)	383
386	399	400	402	408	409
417	433	to	449	(450)	(451)
455	(456)	483	499	(514)	528
545	546	548	567	570	(574)
577	579	580	581	586	to
590	592	596	540	644	645
655	681	686	690	697	698
706	708	(709)	(718)	725	729
752	759	760	794	797	809
818	(822)	825	829	830	(832)
(851)	858	(864)	865	872	876
880	882	(883)	891	894	896
901	907	923	925	950	951
953	959	964	969	971	977
979	(981)	982	986	987	988
992	998	999	1002	1003	1004
1006	1031	1032	1045	1047	1060
1064					

meridionalis

= *Notovola* Finlay 1926

139	140	181	208	209	(247)
(248)	249	273	274	411	523
(524)	525	(526)	552	607	(608)
644	(820)	826	827	842	881
(914)	916	(941)	983	1001	

novaezealandiae

= *Pecten* Reeve 1852

496	661	713	714	812	970
972	973	(1049)	1059	(1063)	

Novaezealandiae novaezealandiae

= *Pecten* Reeve 1852

124	291	(675)	737	738	831
859	885	904			

novaezealandiae rakiura

= *Pecten* Reeve 1852

(124)	660	675	737	738	
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patria

644	906	913			
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sulcicostatus

1061					
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ventricosus

160	162				
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P. (Euvola)

<i>ziesae</i>	84	(128)	291	342	915	918
= <i>Ostrea</i> Linnaeus 1758	962	963	998			

P. (Patinopecten)

<i>caurinus</i>	1	2	44	155	255	(283)
= <i>Pecten</i> Gould 1850	284	to	287	289	290	291
	312	(341)	352	353	(354)	355
	484	508	539	(571)	(572)	573
	593	629	644	650	662	674
	766	776	840	870	1007	

yessoensis

= <i>Pecten</i> Jay 1857	3	15	16	17	37	38
= <i>Mizuhopecten</i> Maruda 1963	39	80	155	200	227	230
	242	243	279	281	291	296
	312	320	321	322	(323)	324
	(326)	(327)	(328)	331	333	339
	340	348	350	351	359	384
	385	(423)	430	431	432	453
	497	498	505	509	(510)	511
	(512)	521	522	541	575	598
	599	609	626	627	633	639
	644	676	677	678	683	(685)
	(694)	702	703	(704)	(705)	717
	731	732	(765)	(767)	(768)	(769)
	770	771	(772)	(773)	774	775
	777	to	784	(785)	786	(787)
	to	(791)	795	799	876	889
	894	905	915	921	926	927
	934	939	940	943	946	952
	955	958	960	961	968	985
	994	(995)	996	1005	1007	1009
	1010	1011	1012	1014	1017	1018
	1019	1020	1022	1029	1038	1042
	1051	(1055)				

Scallop

	49	167	361	379	392	
- Australia	209	391	507	573	688	699
	878	1057	1058	1062	1065	
- Canada	(293)	(308)	(385)	806	868	
- Japan	888					
- Tasmania	221	222	857	941		
- USA	413	569	646	719	804	814
	819	839	868			
- World	223	869	877			

INDEX of SYNONYMS

This index attempts to include the majority of generic and specific synonyms used in the naming of the various scallop species included within the bibliography.

alba *Notovola*
 Pecten

alba meridionalis *Pecten*

asperrimus *Chlamys*
 C. (Chlamys)
 Mimachlamys
 Pecten

audouinii *Pecten* = *opercularis*

balloti *Amusium*

bifrons *Chlamys* (*Equichlamys*)
 Equichlamys

borealis *Pecten* = *gibbus*

brunneus *Pecten* = *magellanicus*

caurina *Chlamys*

caurinus *Patinopecten*
 Pecten
 Pecten (Patinopecten)
 Placopecten
 Platinopecten

circularis *Pecten* = *ventricosus*
 P. (Plagioctenium)

citrina *Ostrea* = *glaber*

citrinus *Pecten* = *glaber*

clintonius *Chlamys* (*Placopecten*) = *magellanicus*
 Pecten

clintonius tenuicostatus *Pecten* = *magellanicus*

concentricus *Pecten* = *irradians concentricus*

darwini *Pecten* = *tehuelchus*

daucus *Pecten* = *opercularis*

distans *Pecten* = *glaber*

dubia *Ostrea* = *opercularis*

elegans *Ostrea* = *opercularis*

exasperatus *Pecten* = *opercularis*

fuscus *Pecten* = *opercularis*

gibba Ostrea

gibbus Aequipecten

A. (Argopecten)

A. (Plagioctenium)

Chlamys (Argopecten)

C. (Plagioctenium)

Pecten

P. (Aequipecten)

P. (Plagioctenium)

(*gibbus borealis*) Pecten = *gibbus*

gibbus carolinensis Pecten = *gibbus*

gibbus gibbus Aequipecten

gibbus portusregii Pecten (Plagioctenium) = *gibbus*

glaber Chlamys (Flexopecten)

Pecten

Proteopecten

glabra Ostrea = *glaber*

grandis Aequipecten = *magellanicus*

Ostrea

Pecten

Placopecten

griseus Pecten = *glaber*

irradians Aequipecten

A. (Plagioctenium)

Aequipecten

Argopecten

Chlamys

C. (Argopecten)

Pecten

irradians concentricus Aequipecten

Argopecten

Chlamys (Argopecten)

irradians irradians Aequipecten

Argopecten

Chlamys (Argopecten)

Pecten

islandica Chlamys

Ostrea

islandicus Chlamys

C. (Chlamys)

C. (Pecten)

Pecten

P. (Chlamys)

jacobaea Ostrea

Vola

jacobaeus Pecten

jacobi Pecten

laqueatus Pecten

P. (Pecten)

lineatus Pecten = opercularis
liocymatus Pecten (Chlamys) = gibbus
maculata Ostrea = glaber
magellanica Ostrea
magellanicum Amusium
magellanicus Chlamys (Placopecten)
 Pecten
 Placopecten
maxima Ostrea
maximus Aequipekten (= Pecten)
 Pecten
meridionalis Notovola
 Pecten
monotis Pecten = varia
mulleri Pecten (Pseudamusium) = magellanicus
nebulosa Ostrea = glaber
nebulosus Pecten = glaber
noronhensis Chlamys
 C. (Chlamys)
 C. (Plagioctenium)
 Pecten
novaezelandiae Pecten
novaezelandiae novaezelandiae Pecten
novaezelandiae rakiura Pecten
opercularis Aequipekten
 Chlamys
 C. (Aequipekten)
 Ostrea
 Pecten
 P. (Aequipekten)
 P. (Chlamys)
patria Pecten
pealei Pecten = islandica
pictus Pecten = opercularis
pleuronectes Amusium
 Ostrea
ponticus C. (Flexopecten)
 Pecten
purpurata Chlamys
purpuratus Chlamys (Argopecten)
 Pecten
radiata Ostrea = opercularis
regia Ostrea = opercularis
rustica Ostrea = glaber

rusticus Pecten = *glaber*
sanguineus Pecten = *opercularis*
solaris Pecten = *glaber*
solidus Pecten = *ventricosus*
striatus Pecten = *magellanicus*
sulcata Ostrea = *glaber*
sulcatus Pecten = *glaber*
sulcicostatus Pecten
tehuelcha Chlamys
tehuelchus Chlamys
tenuicostatus Pecten Pecten = *magellanicus*
tenuicostatus erratus Pecten = *magellanicus*
tumidus Pecten = *ventricosus*
unicolor Pecten = *glaber*
vanvanequii Pecten = *tehuelchus*
varia Chlamys
 C. (Chlamys)
 Ostrea
 Pecten (Chlamys)
varius Pecten
ventricosus Pecten
 P. (Plagioctenium)
versicolor Ostrea = *opercularis*
virgo Pecten = *glaber*
yessoensis Mizuhopecten
 Patinopecten
 Pecten
 P. (Patinopecten)
zic zac Pecten
zig zag Pecten